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COVER PHOTOGRAPH BY

Robert Cardin

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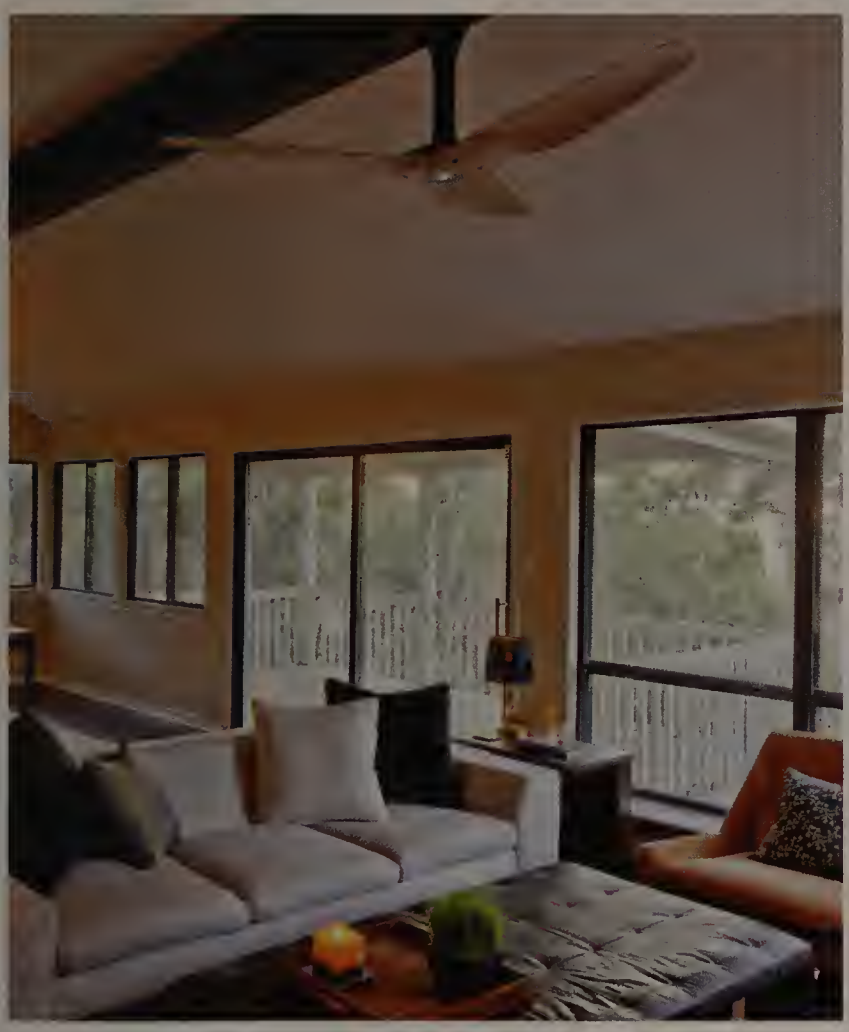

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How Cheap Apps Could Kill the App Store

The less we pay for iPhone software, the worse the situation for us as consumers might become.

Your smartphone is probably one of the most expensive things you carry around each day. Yet many people are downright miserly when they browse the virtual shelves of the App Store. Why? Ironically enough, that tendency to be cheap may prove costly in the long run.

It's no shocker that free apps are vastly more popular than paid apps: Everyone likes getting something for nothing. But it is surprising that folks consider a $3 app expensive, and a $10 app exorbitant. I know people who play the same free iOS game every day—despite its constant, intrusive ads—rather than pony up $5 once and then go ad-free forever.

Of the top 20 best-selling iPhone apps (as I write), 15 cost $1; the priciest one costs $7. The average price of the top 100 paid apps in the App Store is less than $2.

It strikes me that too many iOS device owners fail to act in their own best short-term and long-term interest when they scoff at the thought of spending money in the App Store. Here's how customers who spend lavishly on iOS hardware punish themselves by skimping on apps.

PHOTOGRAPH BY LAUREN FRIEDMAN

You Get What You Pay For

Paid apps tend to be superior to free alternatives. Few Twitter devotees think that the company's free app offers the best experience, but many stick with its free app just to avoid paying for a far better option like Tweetbot or Twitterrific.

Many free apps are fine. But when you buy a premium app, you're often paying for a deeper experience—one in which you are the primary customer, and not the advertisers that are responsible for supporting the "free" app behind the scenes.

The reason that developers charge for apps is that apps cost money to make. When developers charge money for their apps, they can recoup their initial investment of time and resources, and invest in future app development. Customers benefit by getting improved apps, or new apps from those developers, instead of abandoned free apps from developers who can no longer afford to work on them.

> iOS device owners fail to act in their own interest when they scoff at the thought of spending money in the App Store.

On a $1 app, developers earn about 70 cents from each sale. At that rate, a developer must sell more than 70,000 copies of an app to make $50,000 in revenue. For a solo developer, that $50,000 has to cover expenses, development and design costs, and a living wage. If it's a $1 app from a company of, say, three people, the app must sell well over 300,000 copies to make a sustainable business for them.

Of course, if developers price their apps at $1, we needn't feel guilty about buying them. But, to some extent, it has become a catch-22: Developers price their apps too cheaply because that's what they think people will actually pay. And so long as they're right, we as cheap customers are having a negative impact on a lot of real and potential businesses.

The Rise of Freemium

Developers, though, are resourceful. Because so many App Store customers hate to pay for apps, we've seen the rise of the freemium model: You get the app or game for free, but to keep enjoying it, you have to make one or more in-app purchases.

Not only are such micropayments irksome; they can end up taking a lot more cash out of your wallet, too. Case in point: EA's Real Racing 2 initially cost $10. Then Real Racing 3 rolled in with its free-to-download price tag—plus micropayments that can cost players far more than $10 over time, just to derive roughly the same enjoyment that Real Racing 2 provided.

Until App Store customers show more willingness to spend money on great apps, developers will need to pursue in-app micropayments just to stay afloat.

It's Not That Much Money

A contract-free iPhone 5 from Apple starts at $649, and an iPhone with a two-year contract ends up costing you at least that much. By comparison, even a "high-end" app will cost you around 1 percent of the iPhone's price. It's worth it.

You don't buy a Kindle just to enjoy the dictionary and the manual that come preinstalled on the device. You shouldn't buy an iPhone to enjoy only free apps, either. You're cheating yourself, and all because everyone has become conditioned to feeling that $5 is a lot to spend on an app. It's okay to pay for good products.

Spending money on great apps means not only that you get great apps now, but that you're investing in great apps that will emerge later. Let's fix the App Store economy—and let's start by paying for apps without shuddering at $4 price tags.

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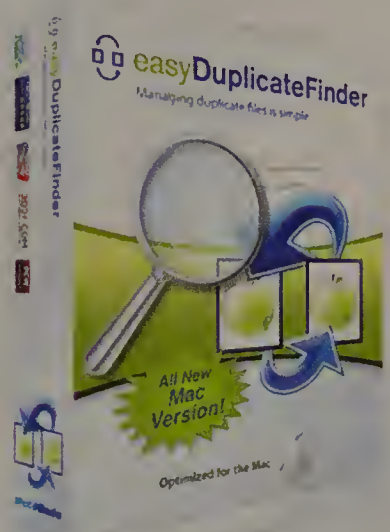

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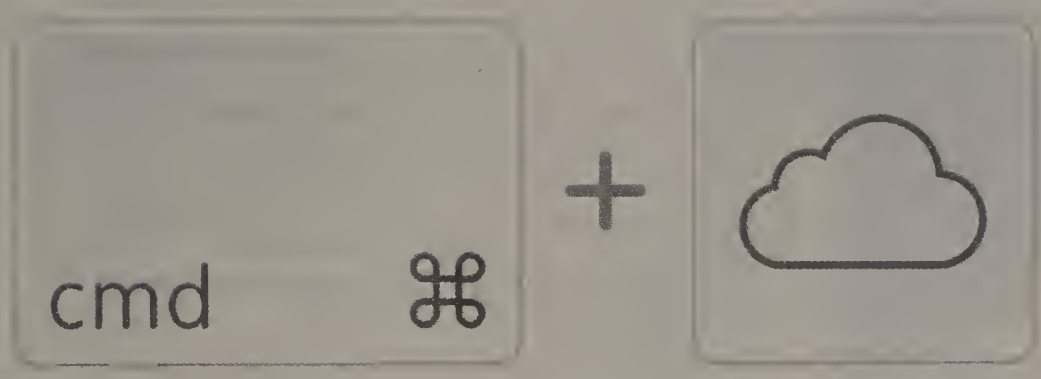

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Our offices are located at 501 Second Street, 6th Floor, San Francisco, CA 94107; phone, 415/243-0505; fax, 415/243-3454. *Macworld* staff can be reached by email at *firstname_lastname*@macworld.com.

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Don't Cross the Streams

We love our Macs—especially when they play nice with the technology in our living room. In this month's *Feedback*, readers describe their living-room setups, chat about digital comics, and—in honor of the iTunes Store's tenth anniversary—look at ten years of Apple hardware.

THE STREAMING WARS

I feel that I have already won the streaming wars ["How to Win the Streaming Set-Top Box Wars"; go.macworld.com/wars]. A $50 Roku box and Plex software on my existing iMac let me do 99 percent of what I want to do. Programming my Harmony One for the Roku box took five minutes (and that included walking upstairs and back).

The real knock on the Apple TV is that it is intended for those people who are heavily invested in the iTunes universe. For me, it introduces more problems than it solves. I have zero interest in syncing to an iOS device and overtaxing its battery to AirPlay my video to the Apple TV.

k88dad, via Macworld.com

Tried Apple TV, which was a grand waste of time. So I bought a maxed-out Mac mini, with an external Thunderbolt 3TB hard drive and a wireless keyboard and mouse, and connected it to my 47-inch HDTV. The new features in iTunes work great for movies, and I can play games on my TV.

JamesBarron, via Macworld.com

The war will be won by a TV that doesn't require a set-top box. Instead, you'd get the software transmitted to your set from your cable/satellite company. Of course, this technology would make it feasible to pay for content on a per-program basis, so the cablecos would have to be reassured that they'd still be able to screw us with bundles that contain hundreds of useless channels. Once we break those greedy creeps, set-top boxes will become as useless as point-and-shoot cameras.

macFanDave, via Macworld.com

APPLE IN THE LIVING ROOM

Readers talk about how they use Apple gear in the living room.

@russwight: I love playing videos from my iPhone on the living-room TV thru my Apple TV.

@Cameron_Talley: Mainly the iPad as a game device while watching TV. Would like an Apple TV, but can't afford at the moment.

@ckoppang: We love looking up topics, actors, or other things that would otherwise provoke an argument.

@zachkolk: ATV2 for music streaming, iMac hooked up to TV for DVD viewing and also a media server, iPad for everything else.

THE DIGITAL COMICS EXPERIMENT

Regarding "The iPad as a Comic-Book Reader" (go.macworld.com/comic): I never read comics on a regular basis when I was younger, but as soon as I got the first iPad, I got into it. With zooming or single-frame viewing, the iPad showed me the "fine art" of the comic book. I had hoped that the cost for each issue would come down to a reasonable level, but alas it hasn't, and so I read fewer comics than I would like and watch for sale pricing.

RoyWagner, via Macworld.com

All reader communications to *Macworld*—through mail, email, our social networking accounts, and our online forums—are presumed to be intended for publication. We reserve the right to edit them.

THROUGH THE LENS: TEN YEARS OF APPLE HARDWARE

As the iTunes Store turned ten, we pondered what ten years of Apple hardware looked like. Reader Alek Lev has the answer. As he says, "The first step is admitting you have a problem..."

Have a great Apple-centric photo? Send it to letters@macworld.com, and we may feature it in a future issue.

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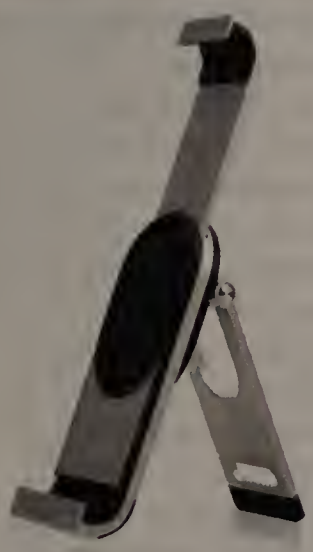

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Apple Fans: Microsoft Is No Longer the Enemy

BY BRENT SIMMONS

I'm a veteran of the Apple/Microsoft war. My first computer was an Apple II Plus, bought way back in 1980.

The enemy in those days was Radio Shack, with its junky and clunky TRS-80. It was cheap, a ton of people bought it, and it wasn't as good as an Apple computer. Then IBM came out with the PC, and IBM became the new enemy. Apple released the Mac, which we Apple faithful knew was unequivocally the better choice. Then came the march of the PC clones—and the enemy slowly shifted from IBM to Microsoft, which made the operating system that ran those clones.

What a terrible operating system that was. The user interface was particularly atrocious, not at all like the one on our beautiful, elegant Macs. But PCs were less expensive, and they outsold Macs.

At first it was a complex enmity because Microsoft made Word and Excel, which were very good Mac apps. But it also made that ugly Windows.

Then Windows 95 came out—and Windows was darn near as good as Mac OS, and the rivalry became an uncomplicated, all-out war.

The Fear

I was the last Mac user in the 1990s, or so it felt. If the word *beleaguered* hadn't already existed, we'd have had to invent it, to put next to Apple's name.

The triumph of the enemy looked to be close at hand, and that triumph would have meant that computers would become joyless and unlovable things.

That fear was deep and real. I used to debate with myself: Would I become a high school teacher or a waiter? And that was because I knew I'd have to quit the software business if Apple disappeared.

I told myself that I could work my way up to restaurant manager. After a while I'd forget about the dreams I used to have before Microsoft took them away with its Windows-driven ascendance.

We got so used to hating Microsoft that we didn't even notice when things changed. Some of us didn't, anyway. At least, I didn't. Then Microsoft helped save Apple in 1997 by investing in the company and committing to future development of Microsoft Office for Mac, which was critical. Steve Jobs, freshly back at Apple, said, "We have to let go of the notion that for Apple to win, Microsoft needs to lose." I didn't listen. And I seethed.

But fast-forward to 2013, and I found myself on Microsoft's campus recording some videos.

It's Just This Software Company, You Know?

They will sing songs in the great halls about Apple's turnaround. It's one of the great achievements of our time. And Microsoft—well, it's a company that makes hardware and software. While some of its creations are good, some are less-than-good. Just like Apple's.

But most important, Windows is no longer a threat to the computers we love. Not the teeniest, tiniest bit.

The Internet, standard file formats, and smartphones changed all this.

It used to be that you could live in an all-Microsoft world—and this was staggeringly common in corporate environments. You'd use Windows, Office, Internet Explorer, Exchange, and SharePoint, and your in-house developers would use SQL Server and Visual Studio. All Microsoft, all the time.

But you don't need Internet Explorer to waste time on Facebook or YouTube. You don't need Windows to watch animated GIFs, or a Zune to play MP3s. You don't need SharePoint to share files.

Most recently, IT departments in many

ILLUSTRATION BY JOHN UELAND

businesses have started pursuing a Bring Your Own Device policy for smartphones. But those phones are rarely Microsoft devices. The vast majority of them are either iOS or Android smartphones. And this means that the services that would have been Microsoft-only are now designed to run on basically everything.

The biggest threat to Macintosh was not that Windows machines were cheaper or that people had bad taste. It was that Windows PCs worked with everything. That's why Apple asked Microsoft in 1997 to keep developing Office for Macs, so we could at least say that users could run Word and Excel on Macs. But these days, everything works with everything.

Give Microsoft a Chance

But let me go a step further: There are reasons to actually like Microsoft:

wasn't the Microsoft (I thought) I knew.

And once I got over the shock, I expected that I would have to write code in C# (a Microsoft language), that the services would run behind IIS (a Microsoft Web server), and that I would have to use Visual Studio (a Microsoft developer tool) on Windows, which I don't even have. That would be typical Microsoft behavior, right?

Instead, the code is JavaScript, the Web server is Node.js, and I can actually write code in any text editor. Nothing Microsoft at all. The company even released some related code as open source and put it on GitHub.

In other words, Microsoft has noticed that there's a world outside Redmond, and it actually likes it.

And I like them for liking it. And it doesn't even hurt.

The biggest threat to Macintosh wasn't that Windows machines were cheaper or that people had bad taste. It was that Windows PCs worked with everything.

Just about every geek I know—no matter how die-hard a Mac user they may be—has an Xbox.

The company is also no longer just a copy machine. I expected Microsoft's new user interface to be a lame copy of iOS. But it's not. If anything, Apple's designs are likely to steer toward Microsoft's flatter aesthetic.

The company also has a great history of excellent developer relations.

And finally, Microsoft is learning how to fit into that diverse ecosystem that ended its monopolistic grip on the computing world. And that's where I'm most proud of my former enemy.

I have an example of the last two points. I'm a developer, and it's developer stuff, but you'll get the gist even if you are not familiar with the topic.

One of the guys who works on Windows Azure Mobile Services gave me a demo of its support for iOS.

What? Microsoft supporting iOS? I just couldn't believe it. That certainly

We've Always Been at War

If Microsoft isn't the enemy—if it's not a threat to our beautifully designed way of life—then who is?

It would be easy to argue that Google is Apple's new enemy, because of the Android operating system, or that Samsung is, because that company is behind the biggest competitive threats to both the iPhone and iPad.

But in reality, neither Google nor Samsung is a threat to Apple. Apple is too big and successful to be threatened by any outside company, at least for the foreseeable future. Instead, Apple's enemy is Apple itself.

It must attract and retain talent. It needs to get strong where it's weak—particularly with syncing and online services. It also needs to retain that awesome balance between cautious incremental updates and the occasional, mind-blowing *new*.

It's not an easy task. But nobody does it better than Apple.

Thunderbolt, USB Speed Boosts

The speeds delivered by two popular data-transfer technologies—Intel's Thunderbolt, and USB—are expected to double this year.

Intel has announced that its Thunderbolt data transfer technology will soon shuttle data between computers and peripherals at a rate of 20 gigabits per second. This is the first big speed boost for the interconnect technology since its introduction in 2011.

The improvement could set the stage for Macs to support 4K displays, whose resolution of 3840 by 2160 pixels is four times today's HD resolution. The Thunderbolt speed boost will enable "4K video file transfer and display simultaneously," Intel said via email in a statement. The speed boost comes through a new controller chip. It will go into production by the end of this year, Intel says.

Meanwhile, the USB Implementers Forum has announced that products based on a new USB specification that will double the data transfer rates between host devices and peripherals will reach the market in late 2014. The organization is working on a specification that will permit data transfers at a rate of 10 gbps, twice the speed of the current USB 3.0 protocol.

"We anticipate the specification to be finalized in July of this year and if it follows the typical path of adoption by manufacturers we should see end products by late 2014, early 2015," a spokesperson for USB-IF said in an email message.—AGAM SHAH

Find My Mac Service: Both Useful and Frustrating for Law Enforcement

BY LOEK ESSERS

Apple's Find My Mac service can show the location of a stolen Mac, but it doesn't always provide enough evidence to justify a search warrant and get the device back to its owner, Dutch police said recently.

The free service for Apple users helps them find the approximate location of a missing device on a map using iCloud. The same service is also available for missing iPhones, iPads, and iPod touch devices. You can also use Apple's finding services to play a sound, display a message, remotely lock a device, or erase all the data on it.

The devices broadcast their location if they are connected to the Internet via a mobile or Wi-Fi network. If a Mac is connected only by an ethernet cable, Find My Mac will not be able to locate the device, according to Apple.

But even if a stolen Mac can be located, this information is not always very useful to the police.

In April, thieves stole an iMac—along with laptops and peripheral equipment—from Rotterdam-based Isolease, says Corine van den Houten, founder of the company.

She used Find My Mac to see whether it could help her track down her computer. A dot on a map indicated that the device was in one of Amsterdam's western suburbs, and van den Houten informed the police. But the police told her they couldn't do anything for her based on that information.

Track it Down The Find My Mac feature of iCloud showed this as the location of Corine van den Houten's stolen iMac.

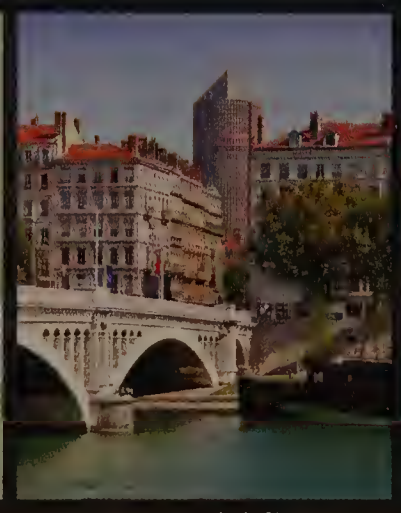
"If the location was given with an address and house number we could probably get a warrant to search the house," Patricia

MacMania 16

Rhone River, November 29th – December 6th, 2013

InsightCruises.com/Mac-16

In November, the tourists are gone from Provence. The harvest's been gathered. The south of France exhales, resuming her essential rhythms, manifesting her ancient uniqueness, effortlessly. It's the perfect time and place to relax, recharge, and revel in the latest in all things Apple on a Rhone River cruise. Join Lex Friedman, Joe Kissel, and Sal Soghoian to learn to set up your own cloud, use Mac OS to offload your brain, tap iOS devices to the max, e-publish easily, and harness your data. Plus, dig in to the Rhone Valley's unparalleled Roman ruins and plumb Roman engineering with noted archaeologist Lynne Lancaster. Experience river cruising's panoramic charms on MacMania 16 on AmaWaterway's AmaDagio, sailing from Lyon to Arles, France.



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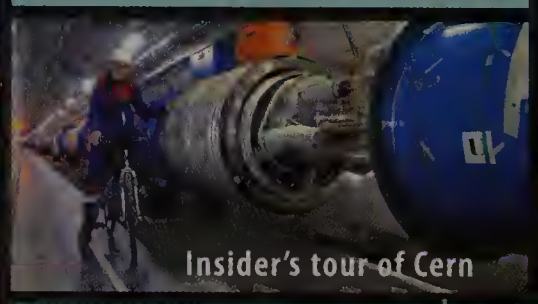

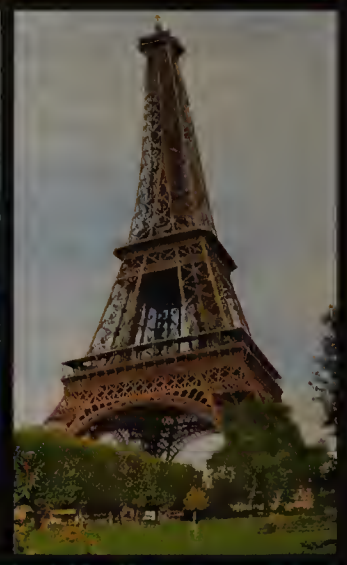

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Wessels, spokeswoman for the Rotterdam-Rijnmond police says. Find My Mac shows only the approximate location, and though the dot on the map provides a nice clue, it is not precise enough, especially in densely populated areas, Wessels said.

"We are not allowed to just start searching 300 homes," says Wessels, adding that searching someone's home is a serious, far-reaching measure to take. In this case van den Houten's iMac appears to be in an apartment building, which makes it more difficult to determine precisely where the device is, notes Wessels. But the police will certainly use the Find My Mac information in their ongoing investigation, she says.

In some cases, though, Apple's location service is very helpful. Hackney's Robbery Squad of the London Metropolitan Police Service (MPS), for instance, has strongly recommended that owners of Apple products install the application. The squad has successfully used the app to trace stolen phones, and on one occasion it located a stolen iPhone within an hour of when the offense was reported.

When the device's owner was robbed in a subway station, the victim logged in to his iCloud account on an officer's iPhone. The phone picked up a signal, and officers were able to follow the signal, arresting a suspect after he was identified, and recovering the stolen iPhone, the MPS reports.

The MPS was also able to use the app to successfully return a stolen Mac to its owner, it says. In this case, the victim's computer was stolen when he was walking down the street. Officers used their mobile phones to track the property, which was found nearby. The suspect was located, arrested, and later charged with robbery, the MPS said.

> The Find My Mac service helps Apple users find the approximate location of a missing device on a map using iCloud.

Using location-detection services can cause problems too, however. A 59-year-old retiree in North Las Vegas said he was wrongly accused of several phone robberies during the past two years when a glitch in a tracking service from Sprint led owners to his door, the *Las Vegas Review Journal* reported in January. This caused many angry people to turn up at his house, demanding their phones back, and has forced him to put a sign on the front of his house telling people he does not have their phones, according to the report.

Meanwhile, van den Houten's iMac was taken offline by the robbers, and she can't see its current location on the map anymore, she says. But she hopes that the machine will come online again. Before it was taken offline, though, she set her Mac to display a message to the robbers: "In as many languages as possible it says: 'Dirty work-shy scum.'"

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PaintCode Excels at Transforming Vector Images Into Code

BY MARCO TABINI

Review

RATING

PRICE
$100

COMPANY
PixelCut

URL
paintcodeapp.com

Pixel precision requires a level of accuracy that is best left in the hands of designers who know how to manipulate the images to get the best possible result. But this goal is time-consuming and expensive.

There are also some instances when pixel-level perfection is hard to achieve due to constraints such as limited file size, the need to support arbitrary resolutions, and the requirement for complex animations. In such cases, the fallback is to use vector images, which are rendered on the fly and scale arbitrarily without loss of resolution.

Even though both OS X and iOS have excellent built-in programming interfaces for vector rasterization, their support for popular vector file formats like SVG is limited, often requires the use of external libraries, and makes manipulating the resulting images in fine detail more difficult.

PixelCut's PaintCode 1.3 aims at solving these problems with its ability to transform a vector illustration into a series of code instructions. The user can then embed the code directly into an app written in either Objective-C or C# using Xamarin, and give developers significant flexibility in its use.

What's Our Vector?

PaintCode has three primary functions: importing existing vector documents (or creating new ones); editing them; and exporting them to a series of source files. It can import SVG files or docs saved with Photoshop's PSD format (requires an in-app purchase.) In my tests, I could load a wide range of vector-based graphics, and almost without fail, PaintCode performed well.

The Editor's Editor

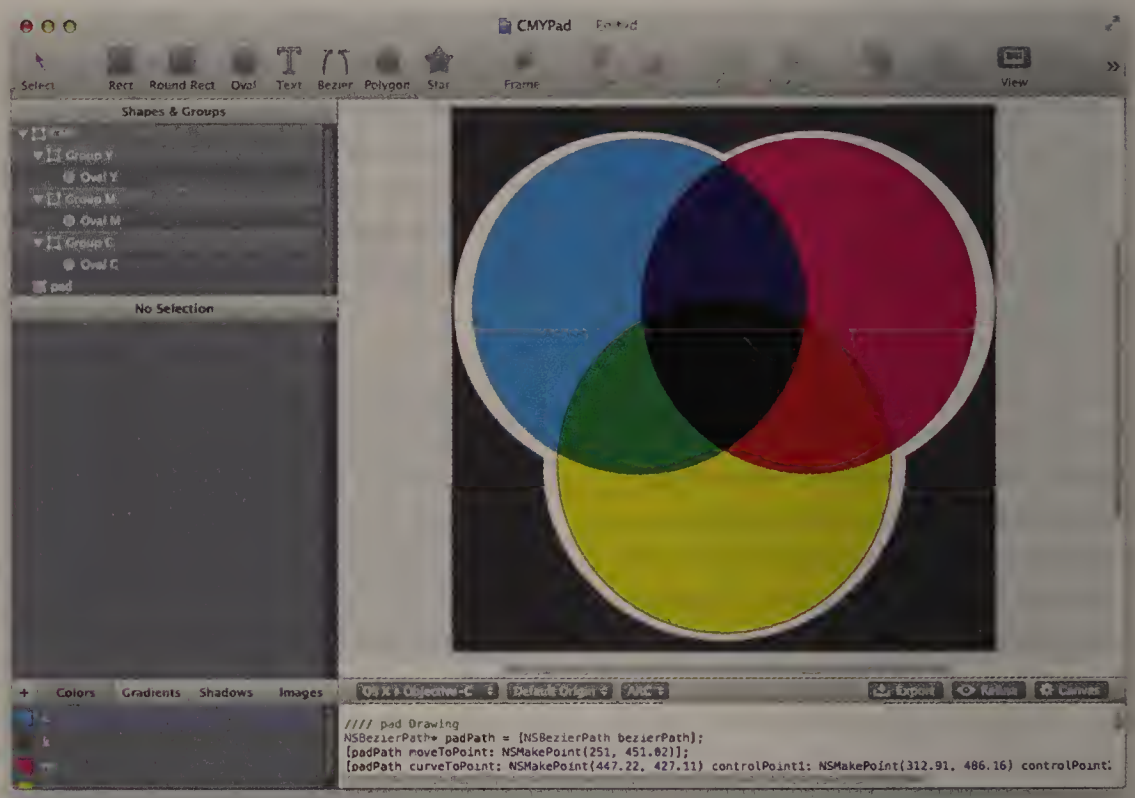
PaintCode's editor allows you to parameterize many aspects of your illustrations, enabling you to manipulate them in code more easily. The decision to incorporate an editor had me a little confused at first. I couldn't see designers switching away from the tools they were already familiar with, and it seemed unlikely that developers would want to deal with yet another piece of software only to gain a rudimentary ability to manipulate graphic documents.

Once I read through the documentation, though, I realized that the idea was to create an "editor's editor" that could augment, rather than replace, existing tools by extending their functionality. PaintCode's editor allows you to isolate portions of a drawing and manipulate them in ways that simplify interacting with them in code.

From Graphics to Code

PaintCode's export functionality takes whatever you have created and converts it into code that you can use in your apps.

In my tests, I found the quality of the code to be good; individual lines are indented well and generously commented where appropriate. Each parameterized aspect of your document is rendered so that you can easily manipulate the values, allowing you to iterate speedily through different versions of your code without having to make manual changes continually. My only complaint about PaintCode is that I would have liked a bit more control over the way the parameters are handled.



Vector Support PaintCode 1.3 can handle most of the features that popular file formats such as SVG files support.

Bottom Line

PaintCode is a fairly expensive tool. But it's powerful enough to change the way you build your apps. You can use it to rapidly prototype your interfaces: Just set up all the UI elements as vectors, change things until you're satisfied, and then hand it to the designers to apply the finishing touches.

Of course, if you need to handle vector graphics in your code, PaintCode could be a lifesaver. Compared to simply rendering PDF or SVG files, it gives you significantly more flexibility and power.

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Funny or Die's 'iSteve' Will Tickle Apple Fans

BY DAN MOREN AND LEX FRIEDMAN

It's hard to say why Funny or Die, a website best known for its short comedic videos, decided to make a full-length Steve Jobs biopic. But *iSteve*—a free, 79-minute, humorous retelling of the Apple cofounder's life—is surprisingly amusing.

iSteve stars Justin Long in the title role. Jorge Garcia plays Woz; and James Urbaniak takes on the role of Bill Gates. The film tells the story of Jobs and Woz teaming up to build the original Apple computer; of Apple the company; and of the Mac, iPod, iPhone, and (briefly) iPad.

Well, it sort of tells that story. The film—knowingly—gets many facts wrong. But the better you know the original story, the more entertaining the parody version can be.

As Funny or Die tells it, Jobs and Woz's early friendship was threatened by Bill Gates, with whom Jobs finds a certain kinship. Those two entrepreneurs end up at odds, both in business and in personal life.

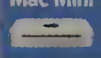
Despite the movie's liberties—and it takes a lot of them—it adopts at times a surprising fidelity to historical events. In the end, you might best describe the film as "truth-adjacent." *iSteve* does touch on numerous key elements of Apple's history, such as the launch of the Apple II and the development of the Macintosh.

The film's recounting of the period between Jobs's Apple stints does diverge significantly from history: It doesn't mention his computer company, NeXT, but focuses on his role in developing Pixar. Later, when Jobs finally returns to Apple, he tells his assistant: "Get me a coffee, black. And a turtleneck, black."

Long's Jobs isn't a straight-up impression. His take on the character is interesting in part because of the story's ridiculousness, but also because he adds a surprising layer of vulnerability. Fans of Apple's history and, say, the Will Ferrell oeuvre will likely not be disappointed by *iSteve*.

More Than Mimic Justin Long brings humor and vulnerability to his portrayal of Steve Jobs.

Macs: Current Lineup

PRODUCT	SPECS	RATING	PRICE	DISPLAY	SPEEDMARK 8[1]	MORE INFO
DESKTOP						
iMac	Intel Core i5/2.7GHz (quad-core)	3½	$1299	21.5 inches	194	go.macworld.com/imac212712
	Intel Core i5/2.9GHz (quad-core)	3½	$1499	21.5 inches	204	go.macworld.com/imac212912
	Intel Core i5/2.9GHz (quad-core)	4	$1799	27 inches	238	go.macworld.com/imac272912
	Intel Core i5/3.2GHz (quad-core)	3½	$1999	27 inches	224	go.macworld.com/imac273212
Mac Mini 	Intel Core i5/2.5GHz (dual-core)	4	$599	Not included	131	go.macworld.com/mini2512
	Intel Core i7/2.3GHz (quad-core)	4	$799	Not included	164	go.macworld.com/mini2312
Mac Pro	Intel Xeon/3.2GHz (quad-core)	3½	$2499	Not included	200	go.macworld.com/macpro3212
	Intel Xeon/2.4GHz (12-core)	3½	$3799	Not included	215	go.macworld.com/macpro2412
PORTABLE						
MacBook Air	Intel Core i5/1.7GHz, 64GB	4½	$999	11 inches	151	go.macworld.com/air641112
	Intel Core i5/1.7GHz, 128GB	5	$1099	11 inches	151	go.macworld.com/air1281112
	Intel Core i5/1.8GHz,128GB	4½	$1199	13 inches	166	go.macworld.com/air1281312
	Intel Core i5/1.8GHz, 256GB	4½	$1399	13 inches	166	go.macworld.com/air2561312
MacBook Pro	Intel Core i5/2.5GHz (dual-core)	3½	$1199	13 inches	121	go.macworld.com/macbook132512
	Intel Core i7/2.9GHz (dual-core)	4	$1499	13 inches	153	go.macworld.com/macbook132912
	Intel Core i7/2.3GHz (quad-core)	4	$1799	15 inches	161	go.macworld.com/macbook152312
	Intel Core i5/2.5GHz (dual-core) 128GB	4½	$1499	13-inch Retina	184	go.macworld.com/macbookret13128
	Intel Core i5/2.6GHz (dual-core) 256GB	4½	$1699	13-inch Retina	190	go.macworld.com/macbookret132613
	Intel Core i7/2.4GHz (quad-core)	4½	$2199	15-inch Retina	270	go.macworld.com/macbookret152413
	Intel Core i7/2.7GHz (quad-core)	4½	$2799	15-inch Retina	284	go.macworld.com/macbookret152713

[1]Speedmark 8 is Macworld Lab's standard test tool for benchmarking systems running Mac OS X 10.8 (Mountain Lion). For more information, see g

{it's not your mother's bluetooth speaker}

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Hot Stuff

What We're Raving About This Month

T3 RAID

CalDigit's new T3 RAID is a three-drive external enclosure that attaches to your Mac via Thunderbolt. It features two Thunderbolt ports for daisy-chaining Thunderbolt peripherals and removable drive trays, which make it easy to swap out drives in case of failure or when you want to upgrade. You can configure the T3 RAID as RAID 0 for speed, use two of the drives in a mirrored RAID 1 array, or use all three as independent drives. The T3 RAID will be available in both SSD and HDD configurations. Prices for the hard-drive versions will be $699 for 6TB and $1199 for a 12TB model; CalDigit has not finalized prices for the SSD configuration (caldigit.com).—JAMES GALBRAITH

SimCity

The latest version of the popular city simulator game isn't merely a port of the Windows version—it's a Mac native app, which should bode well for Mac gamers who might otherwise worry about how well the game is likely to perform. One potential limitation on its overall appeal, however, is that SimCity requires a connection to Electronic Arts' servers, even when it's being run in single-player mode. The $80 Digital Deluxe version includes four bonus content sets; although a $60 standard version is also available, it doesn't offer any bonus content (ea.com).—ROMAN LOYOLA

MacBook Wood Keyboard

The $40 MacBook Wood Keyboard turns the keyboard on your MacBook Pro or MacBook Air into—you guessed it—a wooden keyboard. The key tops, which the company acknowledges take a while to install, are made from either bamboo or rosewood (rawbkny.com).—JOEL MATHIS

10-Port USB 3.0 Hub

Of all the many, many ports included on the $70 10-Port USB 3.0 Hub, the tenth one might just be the most important: Your computer's USB ports can't fast-charge an iPad, but the hub's tenth port—at the very end of the device—does just that, offering enough oomph to get your iPad to its next appointment. (satechi.net).

—JOEL MATHIS

Blackmagicdesign

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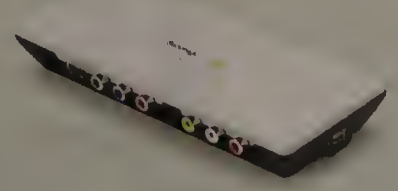
Intensity Shuttle for Thunderbolt features an elegant inline design that looks great on your desk. With built-in HDMI and analog inputs on one side and outputs on the other, connecting to all your equipment is easy and neat! With the same high-end components as Blackmagic Design's broadcast capture solutions, Intensity Shuttle delivers pristine video quality!

Final Cut Pro X Compatibility

Get full compatibility with Final Cut Pro X real time playback. Intensity Shuttle for Thunderbolt includes Media Express software to log and capture video with metadata that includes shot number, clip descriptions and more. With support for ProRes and uncompressed video formats plus XML import/export, it's easy to move projects to applications like DaVinci Resolve for color correction and finishing.



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UTILITY

Alfred 2.0.2

♦♦♦♦½; free (basic app); Running with Crayons; alfredapp.com

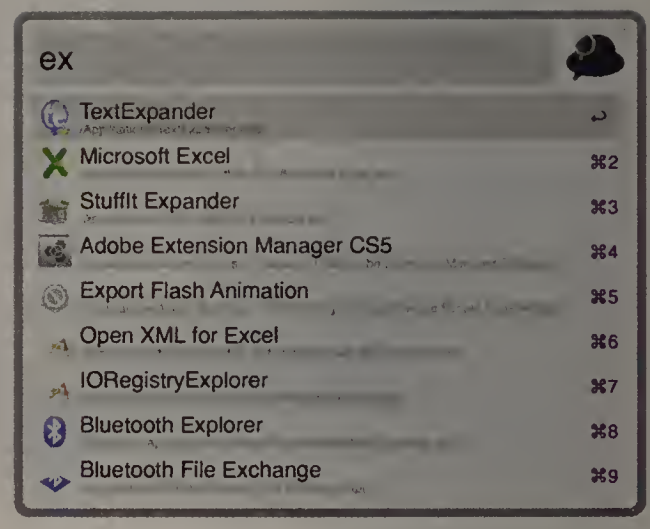
When I first reviewed Alfred, the app- and file-launching utility, back in 2011, I praised it for its simplicity. But soon its developer began adding powerful new features. With Alfred 2, that trend continues, introducing a new feature called workflows.

Thankfully, this added power doesn't compromise Alfred's simplicity. You can still use it to reliably find and launch files and apps, and to perform Web searches without any complex configuration. When you activate Alfred using your chosen shortcut, you get a basic text-entry box. You start typing what you want, and the utility shows a list of possible hits. Scroll down the list and select an item to open it. Alfred also learns which apps you launch most frequently and puts them at the top of the list.

Using keywords, you can find more than just apps and files. For example, typing **g** followed by a search term initiates a Google search.

The workflows feature provides customizable actions to which you can attach hotkeys or keywords. Workflows can be simple (launch a single file via a hotkey) or complex (use a keyword to initiate multiple Web searches for a given search term). Alfred 2 comes with a small selection of sample workflows, as well as some templates. You can construct your own workflows, too.

The other notable change is the addition of themes. Several built-in themes allow you to change the utility's colors and fonts, and the size of the search-results window. The app's developer also says that it has rewritten Alfred 2 to improve performance.



If you're willing to invest the time needed to set up its advanced options and utilize the new workflow feature, Alfred 2 provides impressive power and flexibility.—DAN MILLER

UTILITY

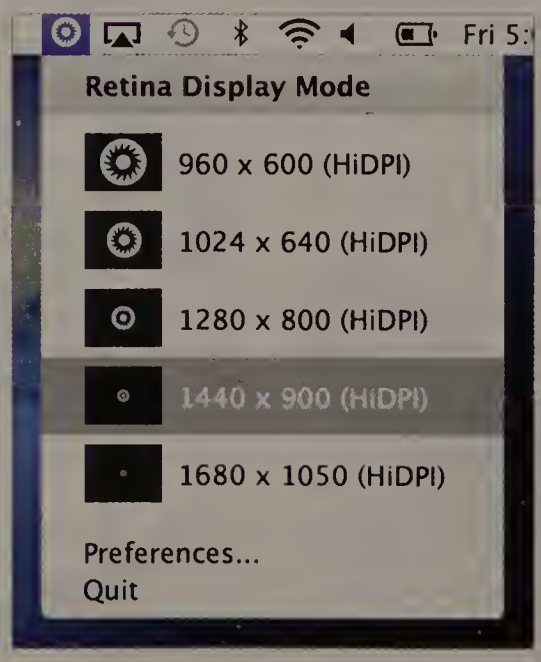
Pupil 1.1

♦♦♦♦; $5; Louder Than Ten; pupil.io

Several resolution-switching utilities have debuted since Apple released its Retina-equipped laptops. The latest, Pupil, gives you a systemwide menu; click it to make a list of available screen resolutions appear. Choose the one you want, and the screen changes. Pupil also offers customization of your list of screen resolutions.

On the 15-inch Retina MacBook Pro, Pupil gave me access to 17 different screen resolutions, including 2880 by 1800 and 3840 by 2400. Chances are, you'll find the resolutions you need in Pupil.

The utility's menu displays an icon next to each setting. This is to symbolically show the size of an example graphic—how it will



appear on your screen at the corresponding resolution. However, it has only five icons, and if you've enabled more than five resolutions, the icon/resolution pairs may not match up. But the app does let you rename each setting; instead of '1400 x 900 (HiDPI)', say, you can call it 'Reading'.

Pupil is optimized for a single display. On multiple-display setups, you have to choose which display it should control. It also doesn't offer any keyboard shortcuts.

Despite these minor quirks, Pupil is convenient and pleasing to use. Retina MacBook Pro owners should have a resolution-switching utility, and Pupil is one to consider.—ROMAN LOYOLA

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In the rare event of an erection lasting more than 4 hours, seek immediate medical help to avoid long-term injury.

If you are older than age 65, or have serious liver or kidney problems, your doctor may start you at the lowest dose (25 mg) of VIAGRA. If you are taking protease inhibitors, such as for the treatment of HIV, your doctor may recommend a 25-mg dose and may limit you to a maximum single dose of 25 mg of VIAGRA in a 48-hour period. If you have prostate problems or high blood pressure for which you take medicines called alpha blockers, your doctor may start you on a lower dose of VIAGRA.

In rare instances, men taking PDE5 inhibitors (oral erectile dysfunction medicines, including VIAGRA) reported a sudden decrease or loss of vision or hearing. It is not possible to determine whether these events are related directly to these medicines or to other factors. If you experience sudden decrease or loss of vision or hearing, stop taking PDE5 inhibitors, including VIAGRA, and call a doctor right away.

VIAGRA should not be used with other ED treatments. VIAGRA should not be used with REVATIO or other products containing sildenafil.

VIAGRA does not protect against sexually transmitted diseases, including HIV.

The most common side effects of VIAGRA are headache, facial flushing, and upset stomach.
Less commonly, bluish vision, blurred vision, or sensitivity to light may briefly occur.

Please see Important Facts for VIAGRA on the following page or visit viagra.com for full prescribing information.

*There might be an additional shipping and handling surcharge to ship orders outside the 48 contiguous states.

You are encouraged to report negative side effects of prescription drugs to the FDA.
Visit www.FDA.gov/medwatch or call 1-800-FDA-1088.

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IMPORTANT FACTS

VIAGRA® (sildenafil citrate) tablets (vi-AG-rah)

IMPORTANT SAFETY INFORMATION ABOUT VIAGRA

Never take VIAGRA if you take any medicines with nitrates. This includes nitroglycerin. Your blood pressure could drop quickly. It could fall to an unsafe or life-threatening level.

ABOUT ERECTILE DYSFUNCTION (ED)

Erectile dysfunction means a man cannot get or keep an erection. Health problems, injury, or side effects of drugs may cause ED. The cause may not be known.

ABOUT VIAGRA

VIAGRA is used to treat ED in men. When you want to have sex, VIAGRA can help you get and keep an erection when you are sexually excited. You cannot get an erection just by taking the pill. Only your doctor can prescribe VIAGRA.

VIAGRA does not cure ED.

VIAGRA does not protect you or your partner from STDs (sexually transmitted diseases) or HIV. You will need to use a condom.

VIAGRA is not a hormone or an aphrodisiac.

WHO IS VIAGRA FOR?

Who should take VIAGRA?

Men who have ED and whose heart is healthy enough for sex.

Who should NOT take VIAGRA?

- If you ever take medicines with nitrates:
  - Medicines that treat chest pain (angina), such as nitroglycerin or isosorbide mononitrate or dinitrate
- If you use some street drugs, such as "poppers" (amyl nitrate or nitrite)
- If you are allergic to anything in the VIAGRA tablet

BEFORE YOU START VIAGRA

Tell your doctor if you have or ever had:

- Heart attack, abnormal heartbeats, or stroke
- Heart problems, such as heart failure, chest pain, angina, or aortic valve narrowing
- Low or high blood pressure
- Severe vision loss
- An eye condition called retinitis pigmentosa
- Kidney or liver problems
- Blood problems, such as sickle cell anemia or leukemia
- A deformed penis, Peyronie's disease, or an erection that lasted more than 4 hours
- Stomach ulcers or any kind of bleeding problems

Tell your doctor about all your medicines. Include over-the-counter medicines, vitamins, and herbal products. Tell your doctor if you take or use:

- Medicines called alpha-blockers to treat high blood pressure or prostate problems. Your blood pressure could suddenly get too low. You could get dizzy or faint. Your doctor may start you on a lower dose of VIAGRA.
- Medicines called protease inhibitors for HIV. Your doctor may prescribe a 25 mg dose. Your doctor may limit VIAGRA to 25 mg in a 48-hour period.
- Other methods to cause erections. These include pills, injections, implants, or pumps.
- A medicine called REVATIO. VIAGRA should not be used with REVATIO as REVATIO contains sildenafil, the same medicine found in VIAGRA.

POSSIBLE SIDE EFFECTS OF VIAGRA

Side effects are mostly mild to moderate. They usually go away after a few hours. Some of these are more likely to happen with higher doses.

The most common side effects are:

- Headache
- Feeling flushed
- Upset stomach

Less common side effects are:

- Trouble telling blue and green apart or seeing a blue tinge on things
- Eyes being more sensitive to light
- Blurred vision

Rarely, a small number of men taking VIAGRA have reported these serious events:

- Having an erection that lasts more than 4 hours. If the erection is not treated right away, long-term loss of potency could occur.
- Sudden decrease or loss of sight in one or both eyes. We do not know if these events are caused by VIAGRA and medicines like it or caused by other factors. They may be caused by conditions like high blood pressure or diabetes. If you have sudden vision changes, stop using VIAGRA and all medicines like it. Call your doctor right away.
- Sudden decrease or loss of hearing. We do not know if these events are caused by VIAGRA and medicines like it or caused by other factors. If you have sudden hearing changes, stop using VIAGRA and all medicines like it. Call your doctor right away.
- Heart attack, stroke, irregular heartbeats, and death. We do not know whether these events are caused by VIAGRA or caused by other factors. Most of these happened in men who already had heart problems.

If you have any of these problems, stop VIAGRA. Call your doctor right away.

HOW TO TAKE VIAGRA

Do:

- Take VIAGRA only the way your doctor tells you. VIAGRA comes in 25 mg, 50 mg, and 100 mg tablets. Your doctor will tell you how much to take.
- If you are over 65 or have serious liver or kidney problems, your doctor may start you at the lowest dose (25 mg).
- Take VIAGRA about 1 hour before you want to have sex. VIAGRA starts to work in about 30 minutes when you are sexually excited. VIAGRA lasts up to 4 hours.

Don't:

- Do not take VIAGRA more than once a day.
- Do not take more VIAGRA than your doctor tells you. If you think you need more VIAGRA, talk with your doctor.
- Do not start or stop any other medicines before checking with your doctor.

NEED MORE INFORMATION?

- This is only a summary of important information. Ask your doctor or pharmacist for complete product information OR
- Go to **www.viagra.com or call (888) 4-VIAGRA (484-2472).**

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PHOTOGRAPHY

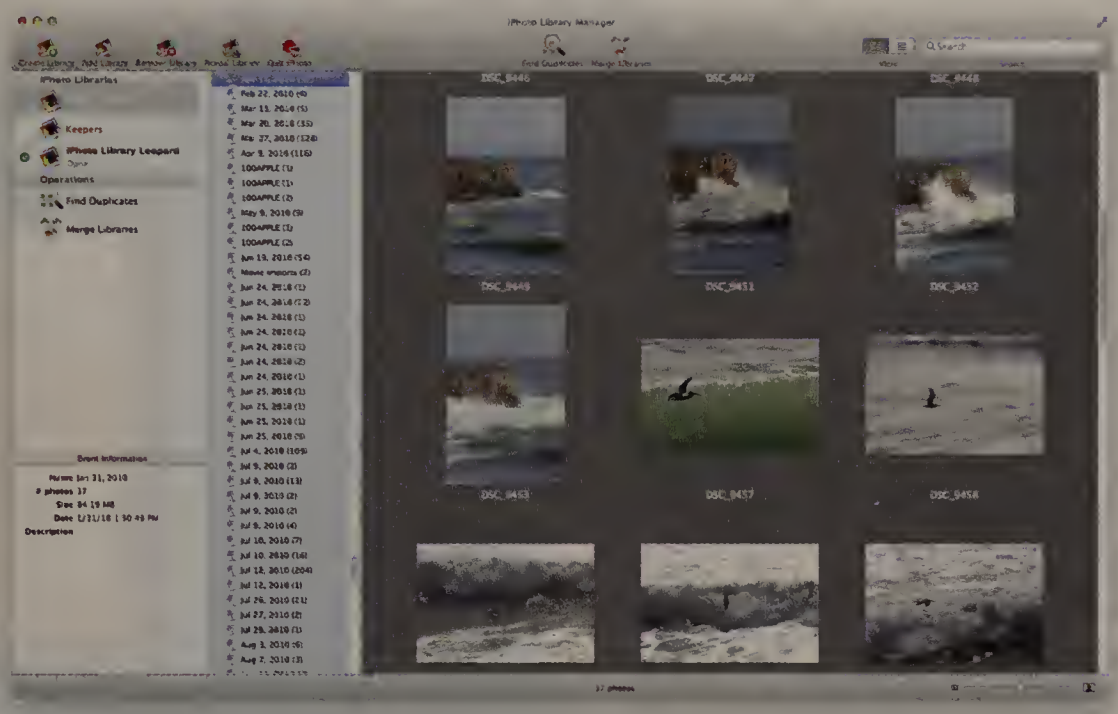
iPhoto Library Manager 4.0.6

♦♦♦♦; $30; Fat Cat Software; fatcatsoftware.com/iplm

Both digital cameras and iPhoto have been around long enough that few longtime Mac users have an entirely manageable iPhoto library. Enter iPhoto Library Manager, an application that lets you easily create and manage multiple iPhoto libraries.

The interface is reminiscent of iPhoto. The toolbar has the application's major commands—Create Library, Add Library, Remove Library, Reveal Library, Quit iPhoto, Find Duplicates, and Merge Libraries. A search field rounds out the toolbar.

Along the window's left edge you find an iPhoto Libraries pane that includes any libraries you've added. A Library pane to its right bears entries for recent images and albums. Select an item in this pane, and its contents appear in the browser to the right.



The toolbar's commands are largely self-explanatory. Click *Create Library* to create a brand-new iPhoto library. To copy photos between libraries, just select them in one library and drag them to another. Merging libraries is quite easy, too. In the process, iPhoto Library Manager can also look for duplicates. Once duplicates are identified, you can filter them, choosing photos by factors such as rating, file size, description, modification date, and title. This feature is very helpful, but in my testing, the algorithm that identifies duplicates was only moderately effective. Although the tool is fast, it failed to find all duplicate images.

Still, that's one just-okay feature among many good ones. Considering that iPhoto Library Manager provides the power for those with tens of thousands of images to manage multiple iPhoto libraries, I consider that more than fair.—CHRISTOPHER BREEN

PRODUCTIVITY

Transloader 1.5.1

♦♦♦½; $5; Eternal Storms Software; eternalstorms.at

I do quite a bit of Web browsing and link visiting on my iOS devices. But when I come across a file that I want to download, I'm stuck, as iOS doesn't provide an easy way to download files. And even if I could download the file to my iPhone or iPad, I would have to figure out how to transfer it to my Mac.

Until recently, I'd copy the download URL on my iOS device and then email it to my Mac; when I got back to my Mac, I'd open the email and click the link. This worked, but it was a hassle.

Which is why I've found Transloader to be so useful. This simple app works with a free iOS app to let you download, to your Mac, files that you come across on your iPhone or iPad.

The easiest way to use Transloader is to keep it running on your Mac. When you find a download on your iPad or iPhone, you just copy the URL and then launch the Transloader iOS app. The app automatically detects that a URL is on the clipboard and asks if you want to add it to your Transloader queue. When you do, the URL syncs over Apple's iCloud system.

The Mac version periodically checks iCloud for new download URLs. When it finds one, it downloads the linked file to your Mac. When the download finishes, you get a notification on your Mac.

In my testing, Transloader worked well, although it can suffer from iCloud's quirks. Sometimes I'll add a URL on my iPhone or iPad, but the Mac version won't receive it immediately. If you're near your Mac and you need downloads to happen sooner, the developer recommends relaunching the Mac version to force an iCloud sync.

While I don't use it every day, Transloader has been a welcome addition to my online toolkit.—DAN FRAKES

iOS Central

The Latest on the iPhone, iPod Touch, iPad, and App Store

Which Apple Devices Are Best for Your Trip?

BY LEX FRIEDMAN

I don't know what to pack. I'm about to take a trip to Dublin, Ireland, and I have no idea whether to bring along my trusty MacBook Pro, my less-powerful-but-more-portable MacBook Air, or merely an iPad. And if I opt for only an iPad, do I select my favorite model—the iPad mini—or do I choose the full-size version so that I can take advantage of its more extensive screen real estate? And if I do stow an iPad, should I leave my Kindle at home? (Okay, I admit that the Kindle isn't an Apple device, but it's a gadget I use daily and feel much affection for.)

Coming Up for Air

Let's get one thing out of the way at the outset: This is certainly the firstest of first-world problems.

It is not, however, a first-class problem. I will most decidedly be seated in the economy section of the plane on this journey, as I will be on my planned flights later this year to Australia and France. And that's a significant factor in my decision: The MacBook Pro is unwieldy when parked on a tray table in coach, especially if the unconscionable rube in front of me yields to the misanthropic temptation to recline his seat back from its fully upright position.

On the other hand, my MacBook Pro is my main axe, my go-to machine. Leaving it behind feels not quite like admitting defeat, but like resigning myself to an imperfect computing experience while I'm abroad. Nevertheless, I can't make a sufficiently compelling case to myself for bringing my heaviest Mac laptop on a jaunt across the globe.

The MacBook Air could be useful, though, even if just as the world's largest charging station. My iPhone is coming along with me no matter what, of course, and I have only one plug adapter, so I'm thinking that I could use it for my MacBook and then use the laptop's USB ports to charge my other devices.

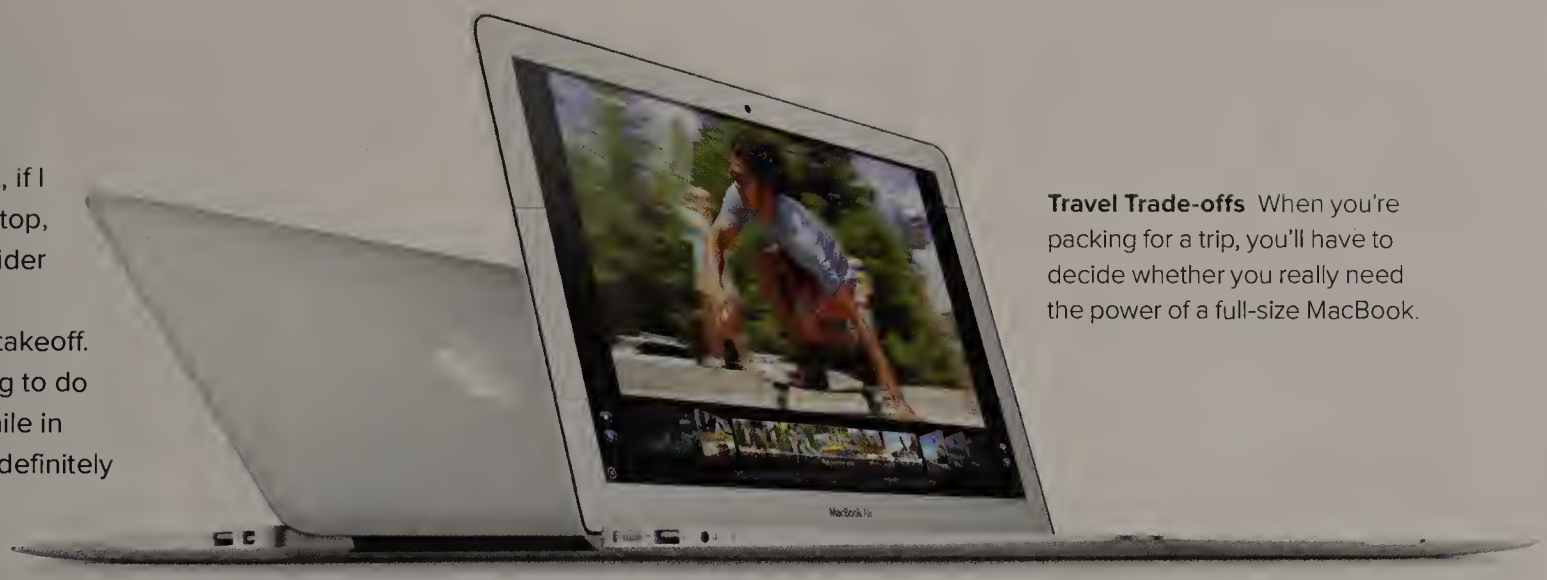
Naturally, if that were the only reason I wanted to take the MacBook Air, it would make more sense to simply pack a powered USB hub instead.

Can I Track With the Lack of a Mac?

The most important question I have to answer is: What would I use the laptop for? On this particular Dublin excursion, I'm speaking at a conference, accompanied by a Keynote presentation I built on my Mac. Although I could make some last-minute tweaks to the presentation as necessary using Keynote on the iPad, the iPad would warn me about irreversible minor changes that might occur. And that kind of thing is scary.

The question of which gadgets to take on a trip is perhaps a rarefied one; but as we juggle more devices, it becomes clear that everything is a compromise.

ILLUSTRATION BY JESSE LEFKOWITZ



Travel Trade-offs When you're packing for a trip, you'll have to decide whether you really need the power of a full-size MacBook.

In light of that, if I go without a laptop, I'll need to consider my presentation finished before takeoff. If I were planning to do serious work while in Ireland, I would definitely pack a laptop; I find my iPad too stifling to use as a full-time work machine. But I don't plan on putting in full workdays from Ireland, so the only things I would be likely to use the laptop for are tasks that the iPad generally excels at: writing email, checking out RSS feeds, browsing the Web, keeping up with Twitter, and engaging in FaceTime conversations with the family back home.

And thus, with a heavy heart but a lighter backpack, I decide to leave both laptops at home.

Maxing Out the Mini

At this point, I have committed to traveling without a MacBook, but there's no way I'm forgoing an iPad. The long plane ride alone necessitates that the iPad accompany me. But it won't be just my in-air entertainment; it will also be my main Internet-connectivity device in Ireland. My lovely third-generation iPad boasts a Retina display and a huge screen with an essentially full-size keyboard. And yet my iPad mini is my favorite iPad of all time.

Despite the full-size iPad's advantages, leaving my preferred iPad at home seems silly, so that's the one I'll take.

If I don't take a keyboard, however, I won't get any writing done. The iPad mini on its own is not conducive to long-form writing. Though I have tried some keyboard cases for the mini, I've found none ideal, so I'll opt for the simplest solution: The Apple Wireless Keyboard doesn't add too much heft to my carry-on, and I'd rather tote it and not need it than need it and not have it.

Rekindled Interest

Let's review where I am at this point: no MacBook Pro, no MacBook Air—just an iPad mini and a wireless keyboard. Given that my packing list seems fairly light now, I think I'll go ahead and throw in the Kindle, too. Here's why: Although I can read on the iPad mini, I prefer reading on the Kindle for a number of reasons—including the fact that the Kindle presents fewer distractions and offers the undeniable advantages of E-Ink. But the top reason I'll include the Kindle in my carry-on is the e-reader's battery life. Impressive as the iPad's battery life is, I find reading on the tablet a smidgen stressful, as I can't help but watch its remaining battery percentage sink inexorably toward zero. I never think about the Kindle's battery life. So for reading on the plane—I have to finish *The Night Circus*—the Kindle makes the cut.

PHOTOGRAPHS COURTESY OF APPLE

Straight Tripping

As may be obvious by now, there's no hard-and-fast rule for determining what to pack for a given trip. For me, at least, the details of my travel plans strongly influence which gadgets I take.

For my trip to Ireland, then, I'm bringing the iPad mini, a wireless keyboard, and the Kindle. That makes sense for this journey because I don't expect to work and because I'm also packing an actual suitcase. If I were traveling with no checked baggage, as I frequently do, the available space and cumulative weight in my carry-on would be critical factors, and I might have to give up the keyboard, the Kindle, or both. But if I were working—or traveling for a longer time—I would likely have brought a laptop along for the ride.

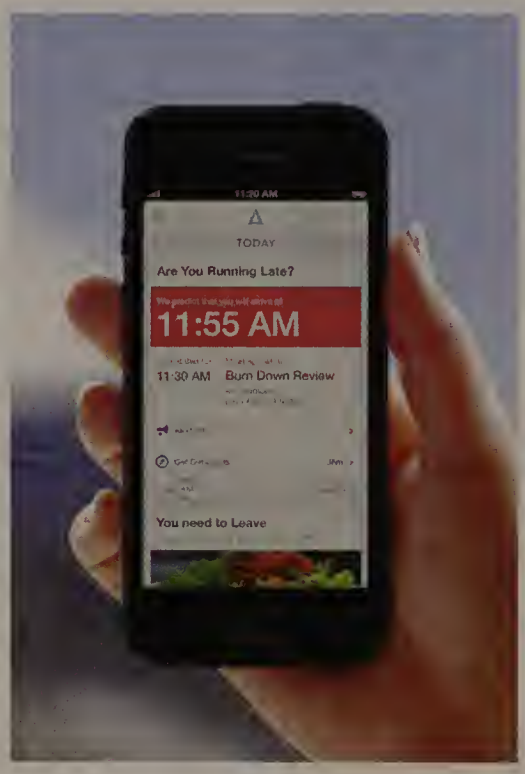
The question of which pricey gadgets to take on a trip is perhaps a rarefied one; but as we juggle more devices, it becomes increasingly clear that everything is a compromise. Presented with situations such as this one, you realize that maybe consumers actually would like a toaster-fridge—if Apple made a really good toaster-fridge. Macs are big and powerful; iPads are light but limiting. A hypothetical hybrid device that offered the best of both would be awesome. At home, having multiple devices is no big deal: I have both my Mac and my iPad when I need them. But when it's time to travel, the weaknesses of each device weigh in the balance just as heavily as their advantages do.

Osito Is Your Personal Concierge for iPhone

BY JOEL MATHIS

HANDS-ON If iOS's Siri is a digital "assistant"—taking your instructions, sending messages, and updating your calendar—Android's Google Now is more of a concierge, reminding you of your next appointment, checking the weather, and anticipating your needs. The recently released Osito, a free "predictive intelligence" iPhone app, offers many of the most prominent features of Google Now.

To do that job, Osito uses data on your phone. You have to give it access to location services and to your calendar; be sure to enable push notifications, too. You don't have to give it access to your Google account, though you may want to if you do scheduling through Google Calendar. (The company promises to keep all of this data private.)



Osito looks at your schedule, where your next meeting is, and where you're located, then gives you a nudge when it's time to hit the road to arrive at that event. If the weather will be wet, windy, or otherwise unusual on that trip, the app alerts you. Similarly, if a traffic jam obstructs your route, the app will let you know, offering you new directions and the opportunity to alert any contacts at your destination that you might be late.

The app includes features for frequent travelers, as well, such as the ability to check your flight status and book taxis to the airport, directly from Osito. If you've made a hotel reservation, the app will alert you once the day before check-in, and a second time as you near the hotel. When you're done with a notification, just swipe to the right to archive it. The developers say they plan to add even more features to Osito in the near future.

All of this means that the app has a lot of moving parts: You can't just fire it up and expect it to start guiding you through your life. Osito's developers say it takes about a day to build your profile before it can be expected to function properly.

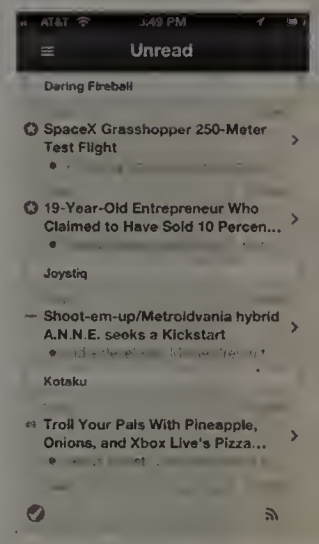
Even then, the creators admit, initial alerts can come too early or too late, but they also note that such problems fix themselves over time as the app evaluates your movements and learns how long you take to reach certain locations.

You'll have to be somewhat specific in your planning: If you set a "Meeting with Jim" in your calendar, for example, you might not get an alert. Instead, state a location—probably by its address, though Osito says using a place name (say, "Sprout Café") will often do the trick.

Osito's functions seem oriented toward commuters and on-the-go executives. If your schedule is clutter-free, or if you stick close to home, Osito won't offer much that you can't already gain from the iPhone's native Calendar and Weather apps. And certainly, its list of features isn't quite as lengthy as Google Now's. For many iPhone users, though, Osito might prove the best defense—for now—against the temptation to buy an Android phone.

Reeder to Survive After Google Reader Shutdown

BY DAN MOREN



App developer Silvio Rizzi has announced that despite Google's shuttering of its Reader RSS service on July 1, he will continue development of his Reeder app for Mac and iOS.

Reeder, a popular RSS reader for Apple devices, currently relies on Google Reader as a back end for serving up feeds and syncing them between devices. With Google Reader being put out to pasture, developers and users are on the hunt for a new solution.

In a posting on Reeder's site, Rizzi said that the iPhone version of the app already supports other services besides Google Reader, and that he is adding more, such as Feedbin. Those enhancements will appear as part of the forthcoming version 3.1. Eventually, Rizzi plans to give users the choice of a number of different services, along with the ability to simply use Reeder as a stand-alone feed reader, without the need for a back-end service.

Meanwhile, Rizzi has made the Mac and iPad versions of Reeder available for free on the Mac and iOS App Stores, respectively. (The iPhone version remains at its current price of $3.) Those two editions will stay free until they receive an update to version 2.0 in the next few months to bring them into line with the iPhone version, complete with support for all the features that it will offer.

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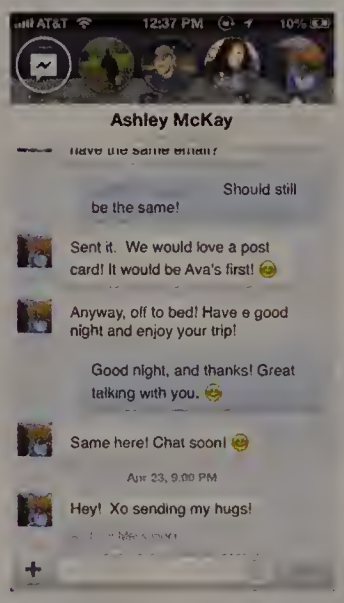
Facebook 6.0 Brings New Look to iOS Apps

In its latest major upgrade to its iOS apps, released in April, Facebook emphasizes images and messages.



For starters, Chat Heads are small bubbles that pop up with your friends' Facebook profile photos when they send you messages. On Android devices with Facebook Home, Chat Heads are visible on the home screen and in any app. iOS users, however, see Chat Heads only when the Facebook or Facebook Messenger app is open.

When I took Facebook 6.0 for a test-drive, I found that the Chat Heads feature is indeed far more convenient for Android users. In the iOS version, Chat Heads are an attractive way to receive a message, popping up on the top bar of the app on the iPhone or iPad. But as soon as you exit the iOS app, Chat Heads vanish, and it's impossible to tell whether someone has messaged you.

The iOS upgrades also bring Stickers—"emoji" icons that turn a text-based smiley into a happy yellow face, among other things—to Facebook messages.

In addition, the News Feed on both iPhones and iPads now mimics the image-heavy desktop version of News Feed released in March, and creates the "personalized newspaper" environment that Facebook CEO Mark Zuckerberg touted when showcasing the design.

Overall, the emphasis on images, articles, and places offers a more visually appealing way to view the activity of your Facebook friends.—CAITLIN McGARRY

HD Voice Calling Headed to AT&T's LTE Network This Year

Following T-Mobile's and Sprint's endeavors, AT&T is set to enable HD voice calls over its 4G LTE network later this year.

HD voice technology has been available in select European markets, though its adoption has been limited because it requires not only a compatible network but also phones that support such capabilities.

Also known as *wideband audio*, HD voice is meant to produce better-quality sound. It packs in more frequency data, helping to reduce background noise and generate clearer audio overall.

In January, T-Mobile was the first U.S. carrier to announce availability of HD voice calling. The initial handsets supported are the Samsung Galaxy S III, the HTC One S, and the Nokia Astound. T-Mobile's version of the iPhone 5 will also support HD voice. The feature is available only if both callers are using one of those phones on T-Mobile's 3G or 4G network.

AT&T hasn't given an exact time frame when HD voice will be available, or which devices it will support aside from the iPhone 5 (and probably the next iPhone).

Sprint revealed plans for wider rollout of HD voice last year, but the EVO 4G is its only HD-voice phone, as the iPhone 5 version for Sprint does not support the technology.—DANIEL IONESCU

What's New at the App Store

Mail Pilot

The $15 Mail Pilot (go.macworld.com/mailpilot) may not help you get to Inbox Zero, but it should help you be more productive: It organizes your email as a to-do list, in which you can mark items as complete or assign them a due date. And if they fit that little-used third category known as "other," you can mark them to be set aside so that you can deal with those items later.—JOEL MATHIS

Mini Display

Why spend a ton of money to add a second full-size monitor to your Mac setup? Just $13 will get you Mini Display (go.macworld.com/minidisplay), which converts your iPad or iPhone into a second monitor and expands your "desktop" workspace.—JOEL MATHIS

Teenage Mutant Ninja Turtles: Rooftop Run

Some ideas are so simple that all you have to do is offer a title, and you're instantly understood. Take Teenage Mutant Ninja Turtles: Rooftop Run (go.macworld.com/tmnt) for iPhone and iPad, for example. The $2 game presents plenty of in-app purchase opportunities for you to gain access to all the content, though, so beware.—JOEL MATHIS

Essential Skeleton

We're suckers for both science and science fiction, and the former often stimulates our imaginations in unexpected ways. So of course we love the free Essential Skeleton (go.macworld.com/skeleton) for iPad. The app provides 3D views of the human body's bone structure, offers audio pronunciations of bone names, and quizzes you on what you've learned. Mostly, it's just cool.—JOEL MATHIS

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SOME RESTRICTIONS APPLY

App Guide

Software for Your iPhone, iPod Touch, and iPad

Wunderlist 2.0

PRODUCTIVITY I'm terrible at keeping track of things; typically I operate on a day-to-day basis. As such, I took it as a bit of serendipity when I got the opportunity to use 6Wunderkinder's Wunderlist 2.0. Finally, a tool designed to help me fix my pathological disorganization.

Smart lists (which ensure that you'll never see anything but what is most relevant), in-app notifications, email alerts, and Facebook integration are just some of the features that make Wunderlist 2.0 a breeze to use. Adding lists and items is elementary. Things get more interesting and elaborate once you start fine-tuning tasks. You don't just assign alerts—you can also generate subtasks, due dates, notes, reminders, and recurring tasks.

You can invite other users via email or Facebook to partake in communal to-do lists, tick off completed tasks, survey daily activity across lists, and decide how to be reminded of events (such as through the app or email). Perhaps the best feature is the seamless cross-platform syncing.

You can't customize list sorting, organize priorities, or set custom sounds. Even so, Wunderlist 2.0 is a smooth-running, swipe-happy package of goodness.—CASSANDRA KHAW

iPhone/iPad | ★★★★; Free; 6Wunderkinder

APP GEMS

Ditch iOS's Default Apps

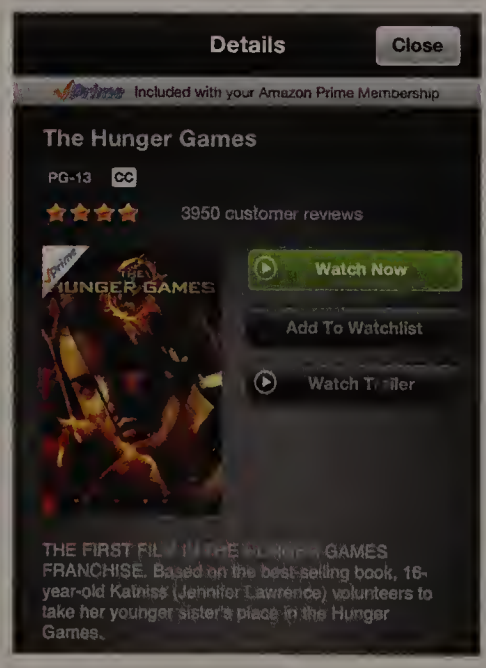
StockTouch ★★★½ Get stock info in a colorful interface (go.macworld.com/stocktouch).

Google Maps ★★★★ Find your way with this navigation tool (go.macworld.com/gmapsios).

Fantastical ★★★★ Manage your calendars and events (go.macworld.com/fantastical).

Clear ★★★½ Create, prioritize, and finish to-do tasks via gestures (go.macworld.com/clear).

Camera Awesome Shoot and edit both still photos and video (go.macworld.com/camawe).



Amazon Instant Video

VIDEO Amazon Instant Video (see page 52 for more) offers lots of streaming content over Wi-Fi—provided that you've signed up for the $79-per-year Amazon Prime service, which gives access to the entire Prime streaming library. If you lack a Prime account, you must make purchases outside the app due to Apple's terms and conditions. Unlike with Prime videos, you can download purchased content to your device for offline viewing.

While the service aims to deliver content at the original resolution, it will downsample the video if your connection isn't fast enough. And although an AirPlay button is available, studio licensing contracts mandate that users be prevented from sending video to an Apple TV (you'll get only audio).

Despite its limitations, Amazon Instant Video is a great option for streaming older content or watching video you've bought on Amazon.com.—SERENITY CALDWELL

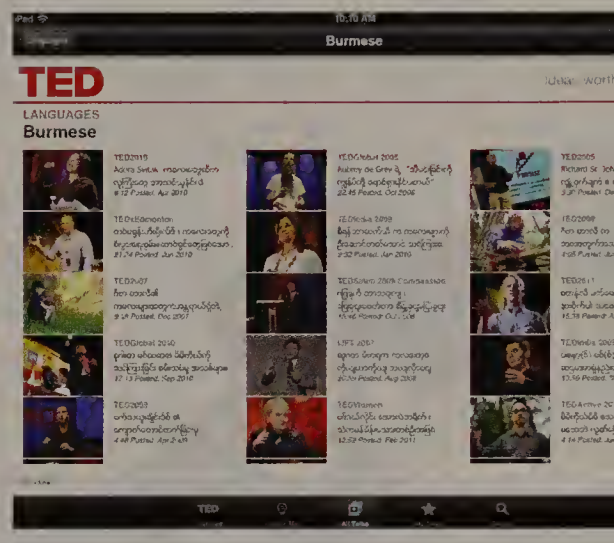
iPhone/iPad | ★★★½; Free; Amazon

Year Walk

GAMES In Year Walk, you plunge into a harsh, snow-covered winter, searching for your future through what the Swedes call *Årsgång*, a mystical experience in which you wander—alone, at night, and on an empty stomach—until you find a cemetery, reading signs of things to be along the way. It's a difficult, intense game guaranteed to give you a good scare or two. The gameplay takes full advantage of iOS's capabilities to immerse you in its world, even challenging your sense of direction.

Year Walk is suspenseful and frightening, and one of the best games I've played on a mobile device. It brings together everything that makes tablets and smartphones unique into a fantastic package—without resorting to gimmicks.—MARCO TABINI

iPhone/iPad | ★★★★½; $4; Simogo



TED

VIDEO When the TED app launched in 2010, it gave access to 700 of TED's incredibly popular short video lectures. That number has since grown to more than 1000 TED Talks—with new offerings each day—featuring lectures on topics from feminism to biology to education to poverty to creativity.

Version 2.0 offers several ways to sift through the material. My favorite is the "Inspire Me" function: You pick a description ("courageous," "beautiful," "jaw-dropping") and then let the app conjure a playlist to match your mood. Subtitle options cover more than 90 languages. The wait for videos to play is barely noticeable, particularly if you're on Wi-Fi.

TED tries to make the world of ideas accessible to a larger audience; this app certainly helps that mission.—JOEL MATHIS

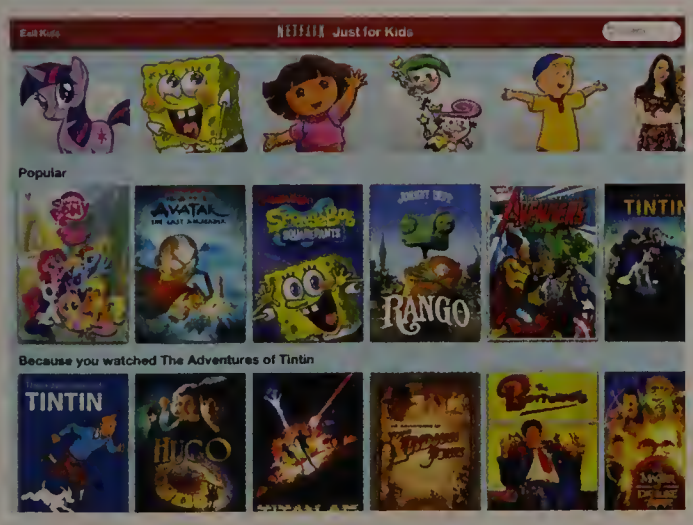
iPhone/iPad | ★★★★; Free; TED Conferences

Hundreds

GAMES More like a postmodern art installation, or perhaps a Cold War torture device, Hundreds is one of the weirdest games you'll find. Each round, you press and hold a circle to expand it. As it grows, its value increases from 0; once the round's value hits 100, you win. If the circle touches an obstacle, however, you lose. This is much harder than it sounds, as later levels are strewn with vicious obstacles. You'll need both insanely good reflexes and a great strategy.

If you enjoy exceptionally challenging games, Hundreds might be your game of the year. But many people will find the frustration offset by little reward.—CHRIS HOLT

iPhone/iPad | ★★★★; $5; Semi Secret Software



Netflix

VIDEO From the moment it debuted for iOS, the Netflix video-streaming app has been a must-have. If you're looking to watch a Netflix TV show on the fly, this app will allow you to do it on either your iPhone or iPad.

The iPad app is almost identical to its iPhone cousin, save for one new, additional feature: Just For Kids mode. The section is a nice option for frazzled parents—they can hand their child the app with Just For Kids enabled (and maybe flip on iOS 6's Guided Access, so that the child can't exit to the main Netflix screen), and not worry about them accidentally watching an episode of *The West Wing* or *Arrested Development*.—SERENITY CALDWELL

iPhone/iPad | ★★★½; Free; Netflix

Reviews

Accessories and Add-ons for Your iOS Devices

Hardware

iStabilizer Dolly

★★★★½; $60; iStabilizer; www.istabilizer.com

iStabilizer's Dolly, which works with an iPhone, iPod touch, or compact camera, features four wheels and an 8-inch articulating arm that lets you move your photo-shooting device smoothly and position it in different ways. The joints are tight, which is great for stability, but as a result the arm isn't always easy to move. The wheels roll smoothly and quietly, though moving the Dolly fluidly at a constant speed takes practice.

The Dolly is a compact, configurable accessory for capturing smooth, stable tracking shots.—JEFF CARLSON

Seagate Wireless Plus

★★★★; $200; Seagate; www.seagate.com

Using the Wireless Plus 1TB Wi-Fi portable hard drive with an iOS device requires the free Seagate Media app for iPad or iPhone, which provides quick and simple access to the drive's files. I use the app's Thumbnail view and List view frequently.

Moving files between my iPad and the Wireless Plus is smooth. Streaming media files from the drive to my iPad also proceeds without a hitch.

The drive itself feels sturdy, and Seagate promises a 10-hour battery life, which is plenty. The Wireless Plus offers a ton of storage and easy accessibility.—ROMAN LOYOLA

Cygnett Workmate

★★★½; $40; Cygnett; us.cygnett.com

If you're worried about dropping your iPad mini, you might invest in a heavy-duty case such as the Workmate. The inside is mostly a soft, shock-absorbing rubbery material, while the outside is primarily a harder, impact-resistant plastic. Installation is fairly easy. The case unsurprisingly adds a lot of bulk.

A Cygnett YouTube video demonstrates drop-testing a Workmate-clad mini onto concrete. Unfortunately, the Workmate doesn't have room for an Apple Smart Cover, so your mini's display will remain vulnerable when not in use.

Bulk aside, the Workmate is well designed, and it feels like it will shield a mini from drops.

—SARAH JACOBSSON PUREWAL

Gumdrop Drop Tech

★★★½; $45; Gumdrop; www.gumdropcases.com

The Drop Tech iPhone case consists of a hard-plastic frame with a glued-on clear screen protector, plus a rubber casing for the back and sides. The screen protector hovers slightly over the screen, which makes tapping much more audible. Condensation forms on it, too. Making the protector optional, or letting the user affix it directly to the screen, would have been better.

The case feels rugged beyond a doubt, though, and the added bulk means that it can probably withstand a decent drop.—ALBERT FILICE

iOS Devices: Current Lineup

PRODUCT	SPECS	RATING	PRICE [1]	DISPLAY	MORE INFO
iPad [2]	16GB	Wi-Fi, ★★★★½	Wi-Fi: $499; Wi-Fi and cellular: $629	9.7-inch color (Retina)	go.macworld.com/ipad4
	32GB	Wi-Fi, ★★★★½	Wi-Fi: $599; Wi-Fi and cellular: $729	9.7-inch color (Retina)	go.macworld.com/ipad4
	64GB	Wi-Fi, ★★★★½	Wi-Fi: $699; Wi-Fi and cellular: $829	9.7-inch color (Retina)	go.macworld.com/ipad4
	128GB	n/a	Wi-Fi: $799; Wi-Fi and cellular: $929	9.7-inch color (Retina)	go.macworld.com/ipad4
	16GB (iPad 2)	★★★★½	Wi-Fi: $399; Wi-Fi and cellular: $529	9.7-inch color	go.macworld.com/ipad2
iPad mini	16GB	Wi-Fi, ★★★★	Wi-Fi: $329; Wi-Fi and cellular: $459	7.9-inch color	go.macworld.com/ipadmini
	32GB	Wi-Fi, ★★★★	Wi-Fi: $429; Wi-Fi and cellular: $559	7.9-inch color	go.macworld.com/ipadmini
	64GB	Wi-Fi, ★★★★	Wi-Fi: $529; Wi-Fi and cellular, $659	7.9-inch color	go.macworld.com/ipadmini
iPhone 4, 4S, and 5	8GB 4[3]	★★★★	Free	3.5-inch color (Retina)	go.macworld.com/iphone4
	16GB 4S[4]	★★★★	$99	3.5-inch color (Retina)	go.macworld.com/iphone4S
	16GB 5[4]	★★★★½	$199	4-inch color (Retina)	go.macworld.com/iphone5
	32GB 5[4]	★★★★½	$299	4-inch color (Retina)	go.macworld.com/iphone5
	64GB 5[4]	★★★★½	$399	4-inch color (Retina)	go.macworld.com/iphone5
iPod Touch 4th Generation	16GB	n/a	$199	3.5-inch color (Retina)	go.macworld.com/touch4
	32GB	★★★★½	$249	3.5-inch color (Retina)	go.macworld.com/touch4
iPod Touch 5th Generation	32GB	★★★★½	$299	4-inch color (Retina)	go.macworld.com/touch5
	64GB	★★★★½	$399	4-inch color (Retina)	go.macworld.com/touch5

n/a = Not available. [1]All prices are Apple's prices. [2]Separate Wi-Fi-and-cellular iPad models are available for AT&T's network and for Verizon's. [3]This phone is available only with an AT&T plan. [4]These models are available with an AT&T, Sprint, or Verizon plan.

MacMania 16

Rhone River, November 29th – December 6th, 2013

InsightCruises.com/Mac-16

The cruise fares start at $2,799 for a Category E. French Balcony cabins start at $3,378. A Junior Suite is available for $4,498. Additional per-person fees include government taxes and fees ($147) and gratuities are €15 per day. Program subject to change.

For a full listing of seminars visit InsightCruises.com/Mac16-seminars

IN NOVEMBER, THE TOURISTS are gone from Provence. The harvest's been gathered. The south of France exhales, resuming her essential rhythms, manifesting her ancient uniqueness, effortlessly. It's the perfect time and place to relax, recharge, and revel in the latest in all things Apple on a Rhone River cruise from November 29 to December 6, 2013.

Join Lex Friedman, Joe Kissel, and Sal Soghoian to learn to set up your own cloud, use Mac OS to offload your brain, tap iOS devices to the max, e-publish easily, and harness your data. Plus, dig in to the Rhone Valley's unparalleled Roman ruins and plumb Roman engineering with noted archaeologist Lynne Lancaster.

Immerse yourself in the South of France. Share Impressionistic vistas and savor the moment with a friend, birdwatch, experience local cuisine, and capture images and memories.

Experience river cruising's panoramic charms on MacMania 16 on AmaWaterway's AmaDagio, sailing from Lyon to Arles, France. The light, colors, and flavors of France await. Make your reservation at http://www.InsightCruises.com/Mac-16, email us at Concierge@InsightCruises.com, or call us at 650-787-5665.

www.InsightCruises.com/Mac-16

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SEMINARS

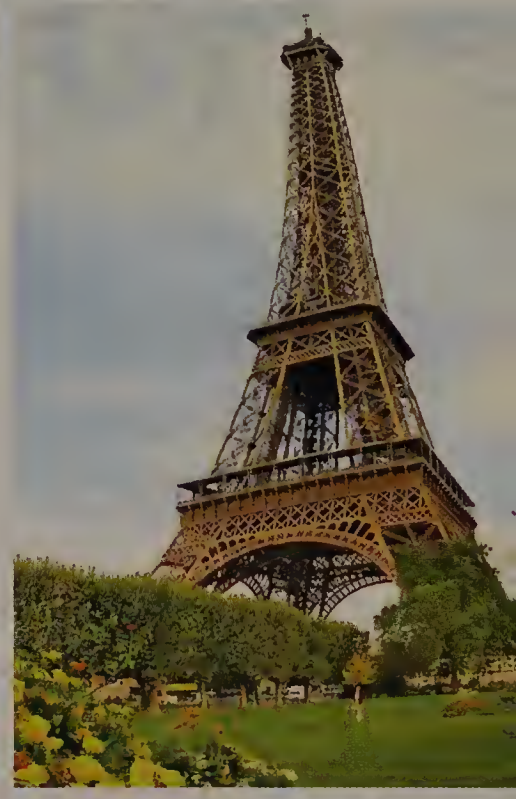
The conference fee is $1,395 and includes all 16 seminars below. Classes only take place when we're cruising, between 8:30am and 7:30pm.

SAL SOGHOIAN
- The 25 Things You Need to Know About OS X
- Introduction to OS X Automation
- Instant E-Publishing
- Make Your Own Cloud

LEX FRIEDMAN
- Mac OS: Offloading Your Brain
- Drive Your Mac From the Keyboard
- Oh, the Things You Can Make
- Improve Your iOS Efficiency

JOE KISSELL
- Stay Safe Out There
- The Joy of (Plain) Text
- Living on a Desert Island with Only iOS
- 50 Things You Didn't Know Your iOS Device Can Do

LYNNE LANCASTER, PH.D.
- Intro to Culture & Technology in Gaul
- Fire-Based Technologies in Gaul
- Building an Amphitheater
- Aqueducts, Baths, and Water Mills



Insider's tour of Cern

Pre-cruise: November 28, 2013—From the tiniest constituents of matter to the immensity of the cosmos, discover the wonders of science and technology at CERN. Join Bright Horizons for a private pre-cruise, custom, full-day tour of this iconic facility. (If the LHC is still undergoing its scheduled maintenance it is likely we will go into the LHC Tunnel.)

Whether you lean toward concept or application there's much to pique your curiousity. Discover the excitement of fundamental research and get a behind-the-scenes, insider's look at the world's largest particle physics laboratory.

Our full day will be led one of our speakers (TBA) and by other CERN physicists. We'll have an orientation; visit an experiment; get a sense of the mechanics of the large hadron collider (LHC); if at all possible, go down inside the LCH tunnel (picture above); make a refueling stop for lunch; and have time to peruse the grounds and exhibits on the history of CERN and the nature of its work. And if you're so inclined, the CERN gift shop.

The price is $899 per person (based on double occupancy). This trip is limited to 50 people. NOTE: CERN charges no entrance fee to visitors.

CST# 2065380-40

THE APPLE HOME

USING APPLE TECHNOLOGIES, ENJOY YOUR AUDIO AND VIDEO ANYWHERE.

ILLUSTRATIONS BY MCKIBILLO

Today, audio and video are available as downloads or streams from a bewildering array of providers. Every hardware device we own, it seems—from our phones to our Macs—can play that audio and video.

If you are an Apple household, reliant primarily on Apple hardware, you're in luck: Those devices most likely support a technology called AirPlay that makes sharing audio and video among devices around the house relatively simple. And the petite Mac mini works particularly well as a home-media server.

We'll tell you how to set up AirPlay and a Mac mini media server. We'll also recommend some AirPlay speakers and walk you through the process of selecting the right video-streaming service.

GETTING STARTED WITH AIRPLAY

HOW TO SET UP APPLE'S MEDIA-SHARING TECHNOLOGY

BY DAN FRAKES

AirPlay (go.macworld.com/airplay)—formerly called AirTunes—is Apple's technology for streaming media over a local (usually in-home) network. It lets you stream audio from any Mac or iOS device to any AirPlay-enabled audio system, or video from a Mac (of recent vintage) or an iOS device to an Apple TV (also of recent vintage).

AirPlay works over any modern ethernet or Wi-Fi network (in the latter case, that ideally means a fast network using 802.11n technology). The sending and receiving devices also need to be compatible with AirPlay.

How you set up and use AirPlay depends on the devices involved and on whether you're streaming audio or video. Here's how you can get up and running.

(Note that these instructions assume AirPlay and your local network are working correctly. Apple provides troubleshooting information on AirPlay—see go.macworld.com/airplay_troubleshooting.)

Streaming Audio With AirPlay

At its simplest, AirPlay is a convenient way to get audio from your Mac or iOS device to a speaker across the room—or across the house.

Though most people think of AirPlay as a wireless technology, you can also stream audio over a wired network, or between wired and wireless devices—for example, from an iPhone to an ethernet-connected AirPlay receiver. But AirPlay is also a relatively inexpensive way to set up a whole-home audio system (see go.macworld.com/house_audio_system)—at least when compared with a custom-installed setup or something like a multiroom Sonos system.

Compared with Bluetooth, the much more common approach to wireless-audio streaming, AirPlay has a number of advantages. For starters, Bluetooth uses lossy compression, while AirPlay is lossless, so, assuming that you're streaming high-quality audio to begin with, AirPlay offers better sound quality. And while Bluetooth audio streaming is limited to devices no more than about 30 meters apart, AirPlay lets you stream from as far away as your Wi-Fi or wired network can reach.

Finally, while Bluetooth allows you to stream to only a single Bluetooth receiver, AirPlay lets you stream audio to multiple speakers or receivers simultaneously.

AirPlay does have a couple of drawbacks: For one thing, it normally requires a Mac or an iOS device to stream (very few non-Apple devices can transmit over AirPlay, at least not without employing some third-party hacks); and for another, AirPlay gear tends to be more expensive than its Bluetooth counterparts.

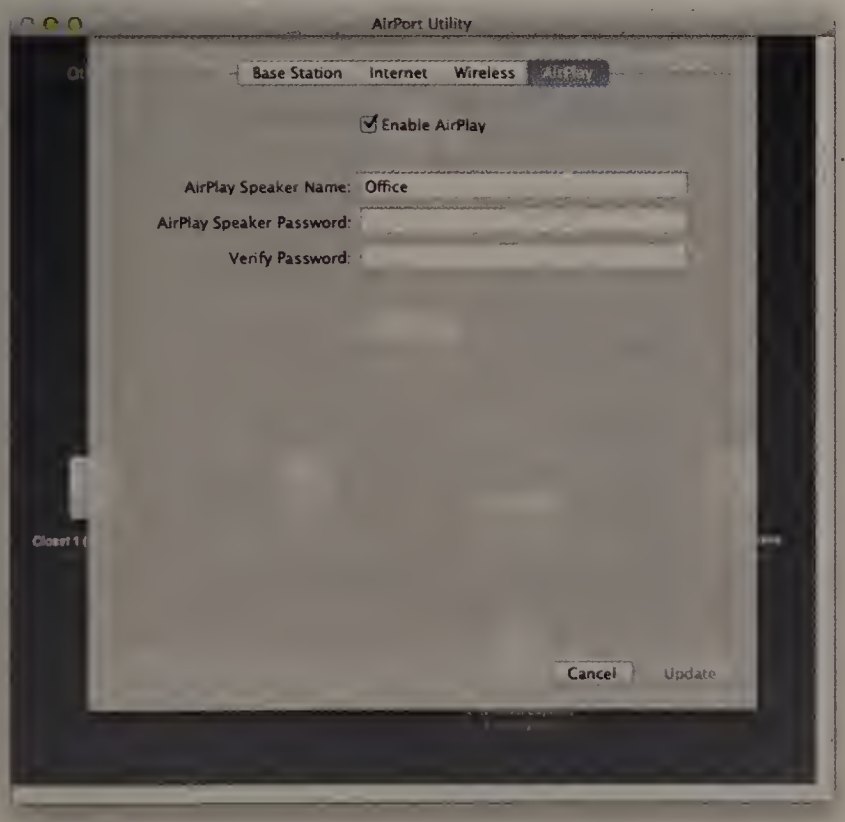
Audio Options

Streaming audio over AirPlay requires a Mac or an iOS device on one end, and an AirPlay-compatible receiver on the other. The simplest AirPlay receiver is a dedicated AirPlay-enabled speaker system (see "AirPlay Speakers Guide," on pages 44–45). These speakers have network capabilities—usually Wi-Fi and ethernet—built in, along with special circuitry that allows the speakers to receive AirPlay-audio signals.

Alternatively, you can use Apple's AirPort Express as an AirPlay receiver. The Express will take any AirPlay signal it receives and send that audio through the unit's output jack, and, from there, to any speaker system or other audio component connected to that jack. (The Express can output either an analog or a digital audio signal.) For example, you can connect a set of powered computer speakers or studio monitors directly to an AirPort Express.

Another possibility is to connect an Express to your existing stereo system; you can even build your own AirPlay audio system (see go.macworld.com/audio_system) using a compact amplifier or an amp/digital-to-analog converter (DAC) and a set of unpowered speakers.

Finally, if you already have an Apple TV (second generation or later) hooked up to your home-entertainment system (see "Streaming Video With AirPlay," on page 41), that Apple TV can serve double-duty as an AirPlay-audio receiver. One caveat, though, is that the Apple TV will be able to output only a digital audio signal.



AirPort for Express In the AirPort Utility, clicking Enable AirPlay, as shown here, configures an AirPort Express to act as an AirPlay receiver.

iOS Network This iPhone screen shows a list of speakers and devices networked to receive audio over AirPlay.

Make the Connection

Before you can stream audio to an AirPlay destination, you must configure your AirPlay receiver. How you do so depends on the kind of receiver you have.

AirPlay-enabled speaker system Most dedicated AirPlay speakers are easy to set up. Often, you just connect an iOS device to the speaker via a USB cable, and then use a dedicated iOS app to configure the speaker to join your local network. (If you want, you can also—and probably should—give the speaker a useful name, such as Kitchen Speaker; this name is how other devices on the network will recognize this speaker). Other models create their own Wi-Fi network; you join that network on your iOS device or computer, connect to a built-in Web server on the speaker, and then reconfigure the speaker to join your network. In either case, the speaker will come with a setup guide for performing this procedure.

AirPort Express Configuring an AirPort Express as an AirPlay receiver is a bit more involved, but it's still fairly easy. If the Express is already a part of your network, you launch AirPort Utility, select the Express, and click *Edit*. Next, click the *AirPlay* tab, check the *Enable AirPlay* box, give the Express a useful name, and then click *Update*.

If you're setting up a new Express unit, you'll first need to follow the setup wizard to configure the Express to join (or extend) your existing network, and then you'll perform the same steps for enabling AirPlay. (In either case, you can also enable a password so that anyone who wants to stream audio to the AirPort Express must provide that password. If your AirPort Express is on a network accessible by other people, a password is a wise idea.) You'll then need to connect your audio system to the Express using an analog-

Multiple Devices You can stream your music to multiple AirPlay-equipped devices—this list shows them by name; you can also select the speakers and control their volume.

or a digital-audio cable.

Apple TV See "Streaming Video With AirPlay," on page 41.

Stream Away

To stream audio, you should first turn on your audio system and make sure it's set to the correct input (if it has more than one). Your next steps will then depend on the type of transmitting device.

iOS: Apps with AirPlay controls Under iOS 4.3 or later, apps can provide an AirPlay-selection control right in the app. This button, which looks like the AirPlay icon, is usually found next to the app's volume-level slider. When you tap the button, you'll see a list of all AirPlay receivers on your local network; tap one of those receivers, and after a few seconds of connection time, the app's audio will begin playing through your AirPlay speakers. Note that, when streaming audio from an iOS app, you can choose only a single AirPlay destination at any one time.

iOS: Other apps Some apps don't provide an AirPlay-selection control; or perhaps you want to stream *all* of your iOS device's audio, regardless of the app. In this case, you can take advantage of iOS's systemwide AirPlay control. Double-press the *Home* button to access the task switcher, and then swipe to the right until you reach the volume slider; next to the slider is the standard AirPlay button. Tap it, and then tap the desired AirPlay destination.

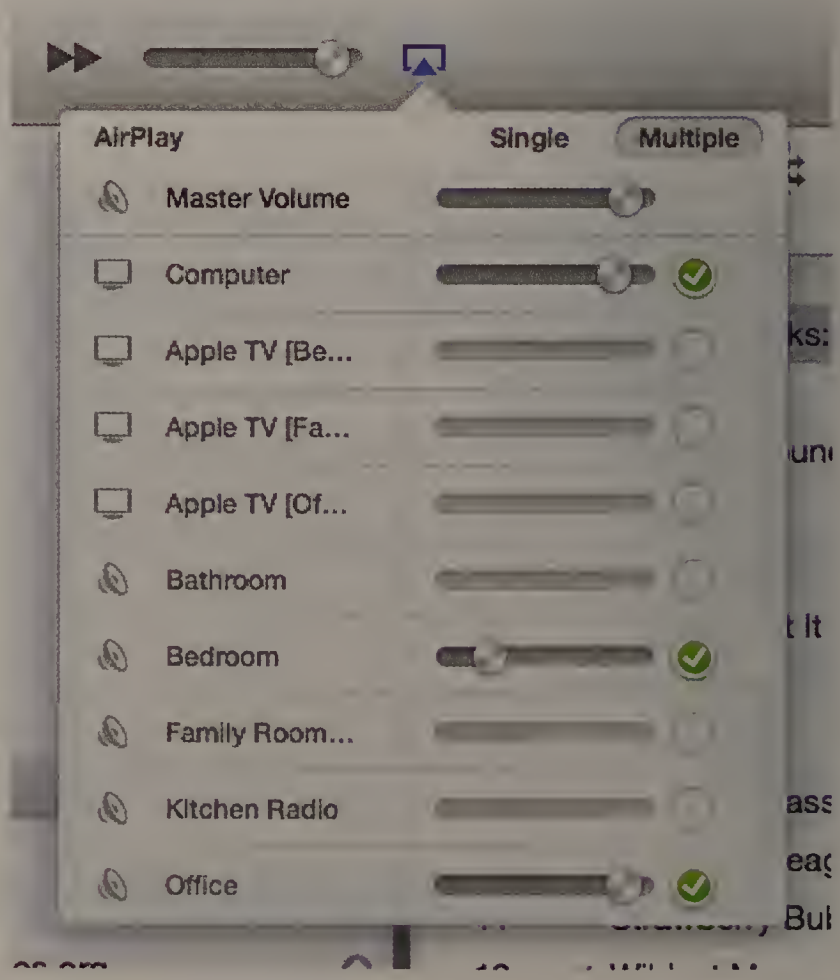
Mac: iTunes audio To stream your iTunes music, simply click the *AirPlay* button near the top left of the iTunes window (it is next to the volume slider), and then choose the desired AirPort destination. To send audio to multiple AirPlay-equipped devices, click *Multiple* and then select the speakers you want to stream to; you can control the volume level of each speaker in this menu.

Mac: Streaming all audio If you want to stream *all* of your Mac's audio, not just iTunes, to a single AirPlay destination, open the Sound pane of System Preferences, switch to the Output screen, and then select your AirPlay destination in the list; after a few seconds, audio should stop playing through your Mac and start playing over AirPlay.

(Alternatively, you can press <Option> and click the systemwide volume icon in the menu bar. This will reveal a list of output and input options; you can choose your AirPlay destination under Output Device.)

A couple of caveats here: First, because of slight transmission delays, you may find that audio and video are out of sync if you're watching video on your Mac while listening to the audio for that video over AirPlay. Second, whenever your Mac isn't actively streaming audio, the AirPlay connection sleeps; once you start streaming audio again, it can take a few seconds to reconnect.

Mac: Other individual apps If you want to stream audio from an app other than iTunes—say, an Internet broadcast coming in over Safari—but you don't want to stream all your Mac's audio, you'll need to turn to third-party software. Rogue Amoeba's $25 Airfoil for Mac (go.macworld.com/airfoilformac)



Streaming From a Mac In iTunes, select the AirPlay icon to bring up a drop-down list of your available AirPlay devices.

lets you choose any currently running app on your Mac; that app's audio is then streamed to the AirPlay destination(s) of your choosing. The included Airfoil Video Player even allows you to stream a video's audio while keeping that audio in sync with the video playing on your Mac.

Streaming Video With AirPlay

If you have a recent Apple TV, you can also stream video over AirPlay from a recent Mac or iOS device to a single Apple TV. Specifically, you need a second- or third-generation Apple TV (one of the small, black models); however, the requirements for your Mac or iOS device differ depending on the type of video streaming you're doing.

To enable AirPlay (for video or audio) on your Apple TV, navigate to the Settings screen, select *AirPlay*, and then make sure that the AirPlay is set to *On*.

And to prevent just anyone from hijacking your Apple TV, you can choose between an onscreen code (which means that anyone who wants to stream to your Apple TV must first enter a code that appears on your TV) or a traditional password.

If you'd like to give your Apple TV a descriptive name, go back to the main Settings screen, select *General*, and then select *Name*. Choose one of the default names, or choose *Custom* to enter a custom name.

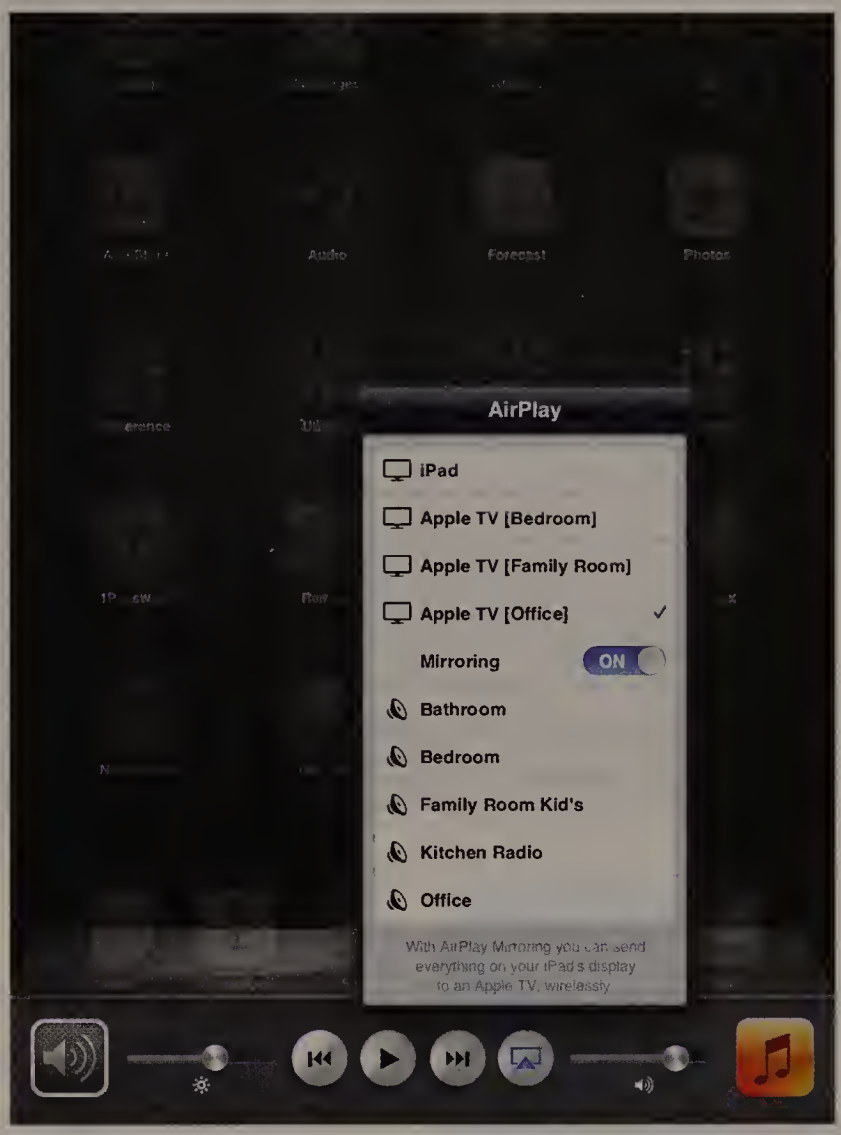
Video to TV

When you want to stream video to your TV, you should first turn on your television and make sure it's set to the appropriate input for your Apple TV. Then use the procedure below that corresponds to your video source.

iOS: Video from individual apps Many video-oriented apps, such as Netflix, YouTube, and Apple's own Videos app, allow you to send the app's video to an Apple TV. While a video is playing, just tap the *AirPlay* button (usually located next to the playback controls) and choose your Apple TV. On any device that supports AirPlay mirroring (see the next item), some apps, such as racing games, can display primary video on your TV and a secondary screen on your iOS device. Many of these games have an option in the app's settings screen to enable AirPlay. Whichever method the app uses, switching to the Home screen or to another app usually stops streaming.

iOS: Mirroring the device's screen If you have an iPhone 4S or later, an iPad 2 or later (including the iPad mini), or an iPod touch (fifth generation or later), running at least iOS 5, you can instead mirror your device's screen on your TV using AirPlay. When mirroring, everything you see on the device's screen will appear on your TV, including the Home screen and any apps you're using. This feature is more useful when your iOS device is in landscape orientation, as a landscape-orientation screen is a better match for today's widescreen TVs.

To enable mirroring on an eligible iOS device, you double-press the *Home* button to access the iOS task switcher, then swipe to the right until you see the AirPlay button next to the volume slider. Tap the button, choose the desired Apple TV, and, finally, switch the Mirroring option to *On*.



Mirroring To enable mirroring from an iOS device, open the iOS task switcher, swipe right, and open the AirPlay menu.

Mac: Streaming video from iTunes Most Macs that can run iTunes 10.2 or later support streaming iTunes-hosted video to an Apple TV. Just click the *AirPlay* button (in the upper left corner of the iTunes window, adjacent to the volume slider), and then choose the desired Apple TV. Now any video you play in iTunes will be shown on your TV instead of on your Mac; if a video is already playing in iTunes, after a delay of a few seconds, the video will stop playing in iTunes and switch to playing on your TV.

Mac: Streaming video outside iTunes If you want to stream non-iTunes video—say, movies in formats that iTunes doesn't support, or videos you don't want to add to your iTunes Library—you have two options: video mirroring (see the next item) or third-party utilities. The $15 Beamer (go.macworld.com/beamer) is a good option for the latter. When you launch Beamer, it asks you to choose which Apple TV to stream to; then you drop any supported video file (AVI, FLV, M4V, MKV, MOV, MP4, WMV, or VOB files) onto Beamer to begin streaming it.

In addition to letting you stream video that resides outside of iTunes, Beamer is also useful for streaming

iPad Video While a video is playing in the Videos app, tap the AirPlay button and select the target device from the list shown.

STREAMING VIDEO TO A MAC

With the help of third-party utilities, you can also stream video (from an app, or a mirrored iOS device or Mac) to a Mac. Two examples: The $13 Reflector (www.reflectorapp.com) and the $15 AirServer (www.airserver.com/Compare) let you receive AirPlay video and audio on your Mac, essentially turning your Mac into a more-capable Apple TV. When one of these utilities is running on your Mac—Reflector supports OS X 10.6.8 or later; AirServer supports 10.4 or later—your Mac shows up as an AirPlay destination for the other Macs and iOS devices on your local network.

video from older Macs that would otherwise be unsupported. It even supports subtitles and 5.1 audio.

Mac: Mirroring the Mac's display As with recent iOS devices, you can mirror your Mac's entire display to your TV over AirPlay, provided you're running OS X 10.8 Mountain Lion on a compatible Mac: a mid-2011 or newer iMac, Mac mini, or MacBook Air; or an early-2011 or newer MacBook Pro.

On any of these Macs, whenever OS X detects a compatible Apple TV on your local network, a new AirPlay menu appears in the menu bar, and an AirPlay Mirroring pop-up menu appears in the Displays pane of System Preferences. From either menu, choose your Apple TV to start mirroring; while mirroring, the icon for the systemwide AirPlay menu glows blue.

When mirroring your Mac's display to an Apple TV, you can choose the resolution of your display, and, thus, of the mirrored signal sent to your TV. Choose *Best For Display* in System Preferences or *This Mac* from the systemwide AirPlay menu, and your Mac's display remains at its native resolution. This setting will make for the best appearance on your Mac (but be aware that the mirrored image may not fill your TV).

Choose *Best For AirPlay* in System Preferences or *Apple TV* from the AirPlay menu, and your Mac's display resolution changes to a 16:9 ratio to best match your TV set's native resolution. This is the way to go when you want to have the sharpest image that you can receive on your TV.

System Preferences also offers a Scaled option, which lets you choose any non-native resolution that's supported by your Mac's display.

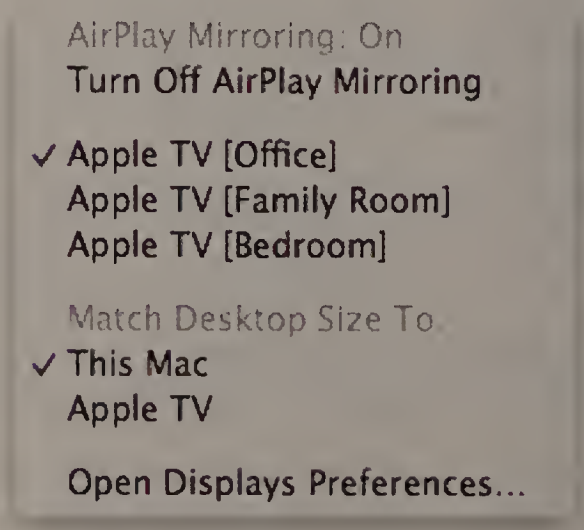
(If you have an older Mac, the $10 AirParrot utility (www.airparrot.com) lets you mirror that Mac's screen to an Apple TV. For both older and newer Macs, AirParrot also allows you to employ your TV as a second display.)

Stopping the Stream

Whichever type of streaming you're doing, with whichever device, you can stop streaming by using the same AirPlay control or menu through which you originally started your streaming. Just switch the selected output or destination back to your iOS device or Mac or, when you are mirroring a Mac's display, choose *Turn Off AirPlay Mirroring* from the systemwide menu or *Off* from the menu in System Preferences.

Alternatively, if you're streaming from a particular app, quitting that app usually stops streaming.

Finally, when streaming to an Apple TV, you can usually stop streaming or mirroring by pressing the *Menu* button on your Apple TV's remote.



Stop the Mirror To turn off mirroring, open the AirPlay menu and select Turn Off AirPlay Mirroring.

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AIRPLAY SPEAKERS GUIDE

If you're setting up AirPlay in your home, you'll need speakers compatible with AirPlay. Here are our six favorites.

BY LEX FRIEDMAN

Audyssey Audio Dock Air

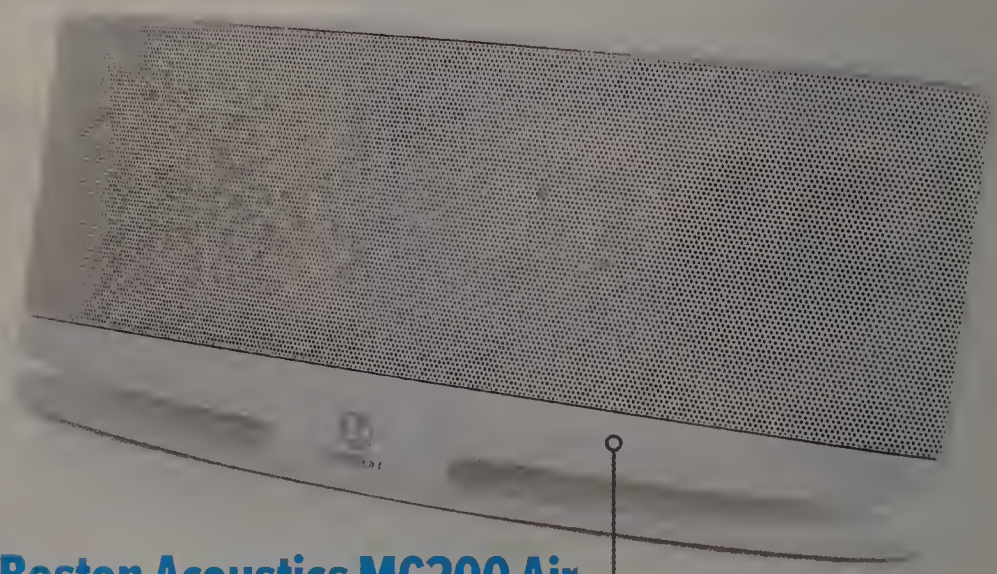
DESKTOP; AIRPLAY, AUDIO JACK; $400

A black, upright, rectangular slab, the Audio Dock Air needs little shelf space. A volume dial is the only control; the speaker lacks even a power button. Once connected to your Wi-Fi network, the Audio Dock Air streams nicely, with nary a hiccup, and the audio quality is very good. Behind the black fabric sides are two 0.75-inch tweeters, two 3-inch woofers, and two 4-inch passive bass radiators, giving bass presence even at moderate volumes.

Pioneer A3 XW-SMA3-K

PORTABLE; AIRPLAY, AUDIO JACK, USB; $399

The A3 is comparable in many ways to the MC200 Air (below), but makes different trade-offs. The A3 is more portable: It has a built-in battery, like the Zipp (right), offering more than four hours of battery life. Also like the Zipp, the A3 can set up its own, ad-hoc Wi-Fi network when you're away from home, and it can easily learn new Wi-Fi settings when you plug it into your iOS device. The A3 is IPX2-rated, so it can handle getting a little wet too, but you wouldn't want to use it in the rain. The A3's bass performance outshines the MC200 Air's, though the latter does a bit better with higher frequencies.



Boston Acoustics MC200 Air

PORTABLE; AIRPLAY, AUDIO JACK; $400

The MC200 Air takes little space (it's even wall mountable), but still offers very nice sound. It has a headphone jack, though how often you'd need to use it is hard to say. The MC200 Air is too small for a subwoofer, and instead uses what Boston Acoustics calls BassTrac circuitry, a digital approach to artificially manage bass. If you like big boomy bass but crave portability, the MC200 Air is worth considering, though it has no battery, and the bass can sound artificial.

BOWERS & WILKINS PHOTOGRAPH BY ROBERT CAPDIN. BOSTON ACOUSTICS AND LIBRATONE PHOTOGRAPHS BY LARA SAGGESE

Libratone Zipp

PORTABLE; AIRPLAY, AUDIO JACK, USB; $400 TO $450

The fact that you can change your Zipp's color by switching out its zippered wool cover is, surprisingly, the least interesting feature of the speaker. More impressive is its simple setup, PlayDirect support, and great sound. By simple setup, we mean that you merely plug your iOS device into the Zipp, and then tap to let the speaker inherit your device's Wi-Fi settings. PlayDirect lets you use the rechargeable speaker even when you're away from a wireless network; the speaker sets up its own Wi-Fi, and you connect your iOS device to it. And the Zipp offers impressively full sound, with substantial lower-end presence, and 360 degrees of sound.

Klipsch Gallery G-17 Air

DESKTOP; AIRPLAY, AUDIO JACK, USB; $550

The shiny black G-17 Air will wow you with its audio oomph. A pair of 0.75-inch tweeters, a pair of 2.5-inch drivers, a bass port, and separate amplifiers combine to generate delightful sound and truly astonishing volume. The G-17 Air can fill well more than a single room if it's dialed all the way up. The speaker ships with an optional mesh cloth that you can stretch across its face; it attaches magnetically. And the company now offers custom grille cloths too; the $25 cloths can be printed with your own imagery.

Bowers & Wilkins A7

DESKTOP; AIRPLAY, AUDIO JACK; $800

One of the costliest AirPlay speakers we've found, the compact A7 offers impeccable audio. Acoustically and aesthetically, the A7 lives up to its high-end pricing. Its slick design hides a trio of integrated, tactile buttons (power, volume up, and volume down). Its two 1-inch tweeters, two 3-inch midrange drivers, a 6-inch subwoofer, and three separate amplifiers yield deep, full, wide, loud sound.

THE MAC MINI MEDIA CENTER

SET UP APPLE'S LITTLEST MAC TO STORE AND SHARE ALL OF YOUR MEDIA.

BY CHRISTOPHER BREEN

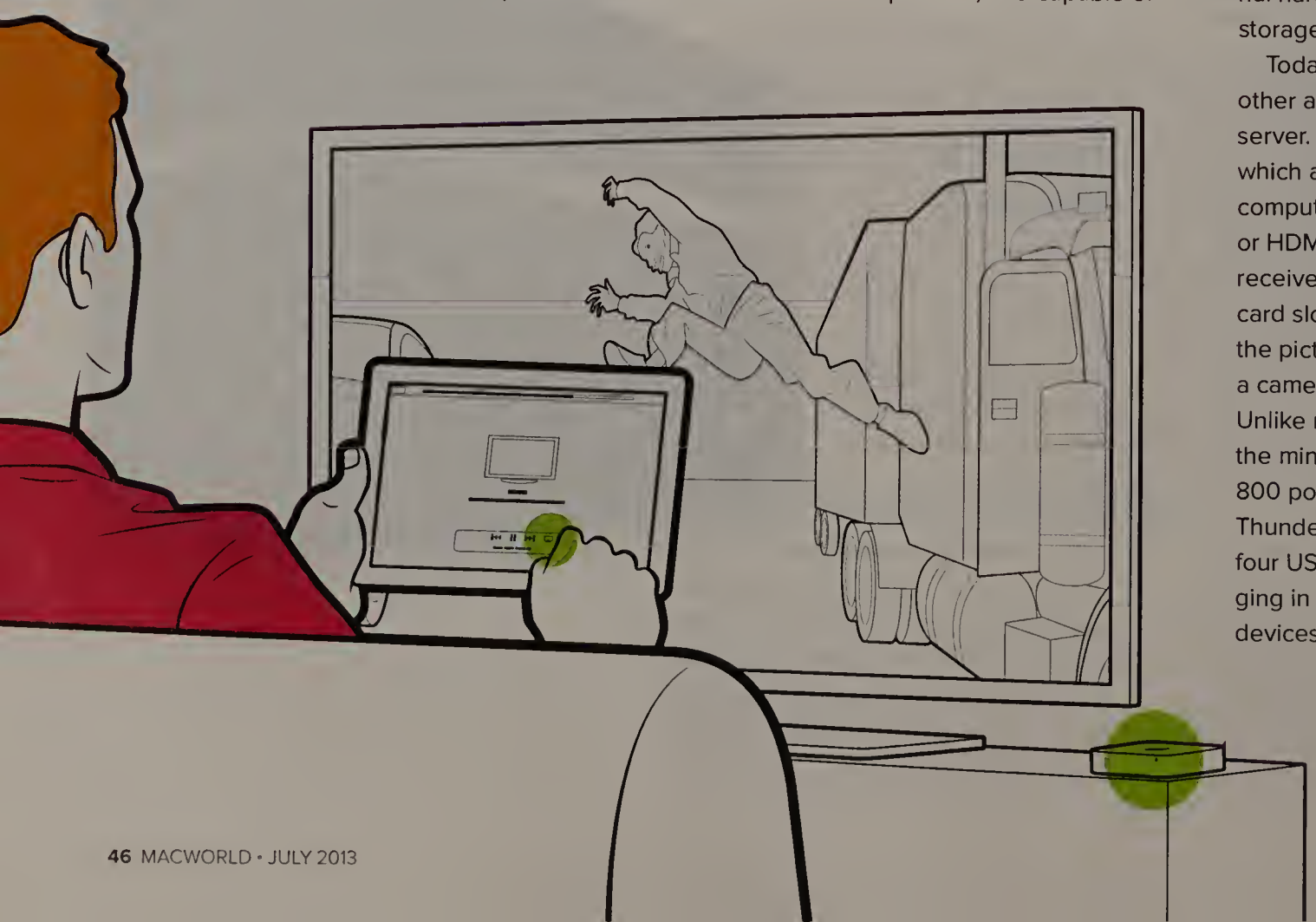
Trot back to the 16th century and corner famed prognosticating monk Nostradamus, and it's quite likely that if you were to pose him the question "Will those living in the year 2013 be able to call up any media programming they like from a single box?" he would respond with an enthusiastic "*Mais oui!*" Unfortunately, however, we know only too well where this prediction would sit in the cleric's win/loss column.

We've certainly made progress, with the growth of cable and satellite services that deliver a trillion channels along with on-demand programming, as well as set-top boxes that provide access to extensive online music and video services. But the Holy Grail—the ability to watch exactly what you want to watch when you want to watch it—currently remains the stuff of dreams.

For this reason, some people interested in setting up a one-box solution have tried turning to the most powerful media device in their home—their computer. Not only can it play locally stored music, video, and slideshows, but with such a machine you can additionally enjoy any media available on the Internet, including streaming television programming, movies, and music.

But sitting in front of a computer monitor—regardless of how spectacular that display's resolution happens to be—can be limiting. The situation makes for a less-than-satisfying group-viewing experience, and it's hard to shake the feeling that you're operating a computer rather than enjoying a media device. What many consumers want is a device that's as intelligent as a computer but at home in the living room, attached to a big-screen TV. For some people, Apple produces exactly that in the form of the Mac mini.

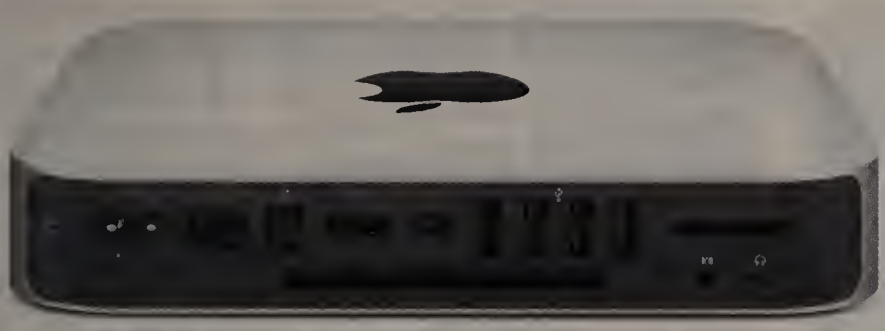
Small, not obscenely expensive, and capable of accessing media locally as well as online, the Mac mini has a lot going for it. But is it the perfect solution for those who are anxious to cut the media cord? I spent a month with one to find out.



About the Box

I chose the $599 base-model Mac mini (♦♦♦♦; go.macworld.com/macmini12) for my media experiment largely because of its price and performance. This version of the Mac mini includes a 2.5GHz dual-core Intel Core i5 processor, 4GB of memory, a 500GB hard drive, and the Intel HD Graphics 4000 chipset built into the motherboard. For another $200 you can purchase a Mac mini with a Core i7 processor and a 1TB hard drive. I chose to save that $200 because the base-model's processor is speedy enough for a media server, and although an ample amount of storage is important for this kind of use, an external hard drive offers more storage for less money.

Today's Mac mini offers other advantages as a media server. It has an HDMI port, which allows you to jack the computer directly into your TV or HDMI-compatible AV receiver. It includes an SDXC card slot for directly accessing the pictures you've stored on a camera's memory card. Unlike most of today's Macs, the mini retains a FireWire 800 port (though it also has a Thunderbolt port). It includes four USB 3.0 ports for plugging in additional storage devices and media peripher-



Ports Galore The latest Mac mini offers media-oriented ports, including HDMI, FireWire 800, and Thunderbolt.

als. The mini has an IR receiver and comes with Apple's remote, too, so you can control it from the couch. It carries a gigabit ethernet port, for those times when a wireless connection isn't fast enough. And it supports digital audio-in and -out.

MANY CONSUMERS WANT A DEVICE THAT'S AS INTELLIGENT AS A COMPUTER BUT AT HOME IN THE LIVING ROOM. FOR SOME PEOPLE, APPLE PRODUCES EXACTLY THAT IN THE MAC MINI.

Dealing With Discs

What the Mac mini lacks—and has lacked for a couple of iterations—is a removable media drive. If you still depend on DVDs and CDs, then you may be annoyed to find that the mini has no slot in the front to accommodate your discs. However, external USB removable-media drives are inexpensive these days, and they operate just as an internal drive does, allowing you to play movies and to install disc-based software. For around $30 you can purchase such a drive that is every bit as good as Apple's $79 USB SuperDrive (go.macworld.com/superdrive).

These drives do not, however, play Blu-ray discs, a technology that Apple has never supported. Although you can add an external Blu-ray player for under $100 and you can find solid software for burning data to such discs, the software necessary to play Blu-ray movies isn't terribly good. If you want to enjoy Blu-ray content, you're better off plugging a separate Blu-ray player directly into your TV or AV receiver—or glomming on to a copy of the digital download that studios frequently offer with today's Blu-ray movie titles, and adding that copy to the Mac mini's iTunes library.

Scarcity of Storage

Media—movies and TV shows, in particular—can quickly take up a lot of storage space. Your average high-definition movie purchased from the iTunes Store consumes 3GB of storage, while hour-long HD TV episodes come in at just under 2GB. Add reasonably robust music and photo libraries, and you'll consume the mini's 500GB of storage in next to no time.

One way to work around this limitation is to leave your purchases in the cloud and download or stream just that content you wish to view or listen to, using iTunes in the Cloud for video and iTunes Match for music. When you're finished with that particular material, delete it. Although this approach gives you a greater amount of storage space, you have to wait while each piece of content downloads or streams; plus, if you have a data cap on your Internet usage, following this method can cause you to burn through that cap before the month is out.

Because you'll want to save that bandwidth for streaming services such as Amazon Instant Video, HBO Go, Hulu, Netflix, Pandora, and YouTube, a better alternative is to attach an external hard drive to the Mac mini and then store your personal collection of media files on it. Shop around, and you can find 2TB USB hard drives for a little over $100. Once you've attached that hard drive to your Mac mini, designating the peripheral as iTunes' storage destination is a simple matter.

The Control Conundrum

While a computer can be a terrific media player, one element has traditionally stood in the way of every media rack bearing a system like the Mac mini: convenient control. We can manipulate AV receivers, disc players, HDTVs, and game consoles without shifting our keisters from the couch—but when we think of controlling a computer, we all too often turn to a keyboard and mouse or trackpad.

Before such peripherals were commonly available in wireless form, incorporating a computer into a media cabinet screamed "kludge!" It forced you off the couch and to the floor, where you'd tap away on the tethered input devices to locate the media you wanted.

You can, of course, control some media applications with the $19 Apple Remote, but it

Paired Up Merge your keyboard and trackpad with the MagicWand.

Handy Controls The TouchPad app turns your iPhone, iPod touch, or iPad into a wireless keyboard and trackpad for controlling your Mac mini.

doesn't allow you to manage the Mac's entire interface. A better option is Bluetooth input devices—keyboards, mice, and trackpads. They solve the couch-control issue and send you well down the path of controlling your setup with an acceptable amount of convenience.

What makes that control even more acceptable is something that lets you gang together an Apple Wireless Keyboard ($69; www.apple.com/keyboard) and Magic Trackpad ($69; www.apple.com/magictrackpad) into one unit. If you're handy in the workshop, you might cobble together a controller tray. For $30, however, Twelve South provides the more elegant MagicWand (go.macworld.com/magicwand), a rounded half-cylinder that accommodates the battery end of both of those Apple wireless devices. When placed snugly together, the two separate input devices become a single unit, which you can then use on your lap.

Turning to iOS

If these devices still seem too bulky for the living room, you might instead choose to use your iPhone, iPod touch, or iPad as a controller. One of a variety of apps can turn your iOS device into a wireless keyboard and trackpad.

For example, both Evan Schoenberg's $5 Rowmote Pro (go.macworld.com/rowmote) and Edovia's $5 TouchPad (go.macworld.com/touchpad) allow your iOS device to become a virtual keyboard and trackpad. Using the companion Mac software for one of these apps, you can pair your iOS device with the mini and then control its interface much as you would with a physical wireless keyboard and trackpad.

If instead you want to tap on your iPad as if it were the Mac's screen, choose a VNC app such as the $25 iTeleport (www.iteleportmobile.com), the $5 Splashtop Remote Desktop (www.splashtop.com), or the $20 Screens (www.edovia.com). Each of these apps mirrors the Mac's interface to an iOS device and allows you to control your computer remotely. With iTeleport and Splashtop, you have to install and run free server software on the Mac, which permits the iOS client to make the connection and project your Mac's screen to your iOS device.

Adding a Media Player

Remote control is certainly one major challenge of using a computer as a media device. The other hurdle is making that control family-friendly. While you, as the techie of the family, may feel perfectly comfortable with the system you've set up, other family members might not touch it because they find it too complicated. For this reason, you should simplify the interface as much as possible.

At one time you could perform this task with Apple's Front Row technology (go.macworld.com/frontrow), which allowed you to impose an Apple TV–like interface on your Mac. Although Front Row did make browsing media easier, it was almost entirely limited to the media in your iTunes library; Apple appeared to have no interest in opening it up to streaming media from other companies.

Thankfully, third-party developers are more open-minded about this kind of thing, and currently the market offers a couple of media-center applications that you can use to control not only your locally stored

Friendly Interface Based on the open-source XBMC, Plex is a slick media player. Shown here is Plex on an iPad running the Screens app.

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music, images, and videos, but also Internet-based media streams: XBMC (xbmc.org) and Plex (www.plexapp.com).

XBMC is an open-source media player and entertainment hub, while Plex is an application and interface built on XBMC's technology. Of the two apps, I find Plex easier to use thanks to its slick interface and the ease with which you can add both your local media and assorted Internet streaming services such as Amazon Instant Video, The Daily Show, Hulu, Netflix, Pandora, PBS, Shoutcast, Spotify, Vimeo, and YouTube.

Using Plex with your local media means configuring the separate Plex Media Server. This is a free application, and one that isn't difficult to configure. You simply choose the kind of media you would like to add, and then tell Plex where that media is stored. It will make sure that the items appear in the Plex player.

Once you've added the streaming media channels you desire as well as the music, movies, and images stored on your Mac (or a local network server), you can navigate to them easily using the Apple Remote, a keyboard, or one of the iOS apps I mentioned. Plex's interface consumes the entire screen, making it seem as if you're working with a dedicated media player rather than with a computer.

Regrettably, Plex can't play all the media you might want to access. For example, it won't play copy-protected media such as the movies and TV shows you've purchased from the iTunes Store. It also lacks support for on-demand material such as HBO Go or a cable or satellite service's catalog of streaming movies and TV shows that can play in a computer's Web browser.

WHILE YOU MAY FEEL PERFECTLY COMFORTABLE WITH THE SYSTEM YOU'VE SET UP, OTHER FAMILY MEMBERS MIGHT NOT TOUCH IT BECAUSE THEY FIND IT TOO COMPLICATED.

Simplifying the Interface

To play such media, you must leave Plex, which can cause a problem for family members because they now have to confront a computer interface, which less-savvy users may find confounding. Fortunately, you can do a number of simple (and not-so-simple) things to make the experience easier for them.

The first is to place aliases of desired applications and sites on the desktop. For instance, you might hold down the ⌘ and <Option> keys and drag iTunes from the Applications folder to the desktop, thus creating an alias. Another example: If you wish to watch HBO Go, launch Safari, go to www.hbogo.com, and drag the icon from the address field to the desktop to create a Web-location file that, when double-clicked, launches the browser and goes to that site. Alternatively, you can create a folder of aliases and drag them to the Dock. Instruct your loved ones to click this folder and then click the site or application they wish to launch.

(Some readers will wonder why you'd need to use HBO Go in a browser when you have to be an HBO subscriber in order to access HBO Go, and therefore can watch it on your cable or satellite receiver. The sad fact is that not all cable and satellite providers offer HBO Go. DirecTV, for one, carries some HBO content on demand, but not the complete HBO Go service. In this case, customers must use the iOS app [see page 55] or a Web browser to enjoy this content.)

Automating the One-Button Approach

You can make playing media even easier for your household by providing one-button access to applications and websites. The means for accomplishing this is Automator. Following are the steps for how you would set it up with the HBO Go website.

Launch Automator, and in the workflow chooser that

On Demand If your cable or satellite service doesn't support HBO Go on other devices, use your Mac mini.

appears, select *Service*. Configure the pop-up menus at the top of the workflow to read *Service receives no input in any application*. Now drag the Web-location file for HBO Go to the workflow area. You'll notice the addition of a Get Specified Finder Items action that contains the Web-location file. Select the *Files & Folders* library, and from it drag the Open Finder Items action to the workflow area. Make sure that its pop-up menu reads *Open with Default Application*.

To test the workflow, just click the *Run* button at the top of the window. Safari will launch and take you to HBO Go. If you've already visited the site, signed in, and had Safari remember your password, you'll still need to click *Sign In* and enter the email address for the cable or satellite service you use—the site requires you to sign in each time you visit.

Save and name the service (**HBO Go** has a certain ring to it). Launch System Preferences, select *Keyboard*, click the *Keyboard Shortcuts* tab, and select *Services*. Your new HBO Go service will appear near the bottom of the list under the General heading. Select it and click *Add Shortcut*. Finally, assign a keyboard shortcut to the service. From now on, you or anyone in the house can trigger this shortcut on a wired or unwired keyboard, or in an iOS app.

Repeat this process for other websites you wish to make easily accessible, assigning a different keyboard shortcut for each site. When you're done, all you and your family need to do is remember which keys launch the websites you want to access.

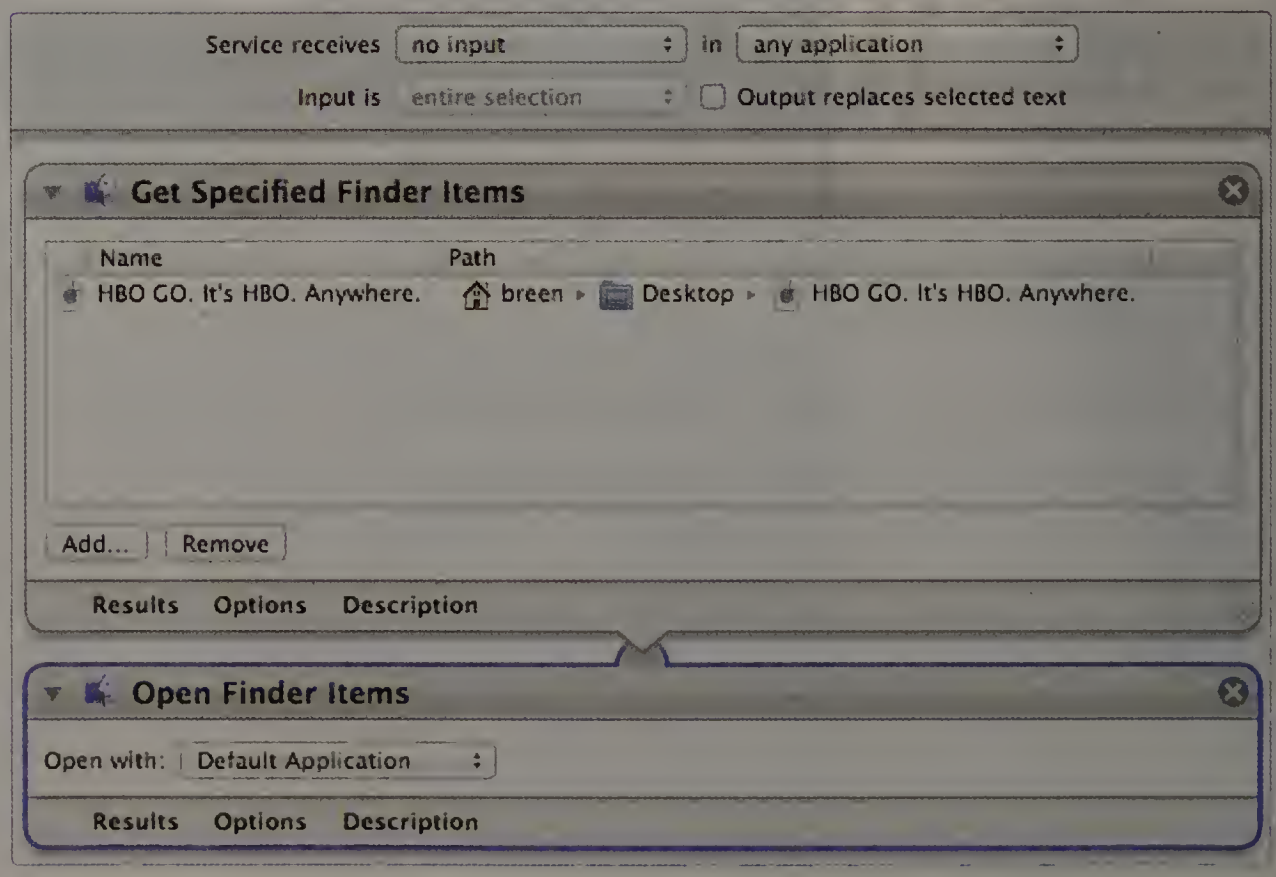
UNFORTUNATELY, FAR TOO LITTLE HAS CHANGED ON THE CONTENT FRONT. TELEVISION NETWORKS, LARGE AND SMALL, CLING JEALOUSLY TO THEIR PROGRAMMING.

Cord Finally Cut?

Unfortunately, far too little has changed on the content front. Television networks, large and small, cling jealously to their programming. You can't stream TV the way you can access it from a cable or satellite box. Thanks to online subscription services such as MLB.TV (go.macworld.com/mlbtv), NBA Game Time (go.macworld.com/nbagametime), and NHL GameCenter (go.macworld.com/nhlgamecenter), you can stream live baseball, basketball, and hockey games, but you are limited to out-of-market games, meaning you can't watch your home team when they are playing at home. Many other popular sports (football, golf, and soccer in particular) aren't consistently available. Special live events such as the Academy Awards broadcast or election coverage are also unavailable. And premium-channel content from HBO and Showtime is available only if you already have a subscription, which requires that cable or satellite box whose cord you're anxious to cut.

Elgato continues to offer a way to get live TV into a Mac via its $150 EyeTV Hybrid (go.macworld.com/eyetv), a TV tuner on a USB stick. With this device you can display and record unscrambled cable TV as well as digital over-the-air broadcasts (antenna required). However, although it solves the live-events issue for many people, it does not grant access to the vast majority of cable programming.

Given these restrictions, the Mac mini—like the Apple TV, Roku, Xbox, and countless other set-top boxes—remains a media accessory, though one more powerful than those dedicated devices. While it falls short of a cable or satellite box (complete with DVR) and true à la carte programming, it remains a worthwhile addition to the AV cabinet of the technically inclined.



One-Touch Access In Automator, you can set up a workflow to make a shortcut for launching HBO Go.

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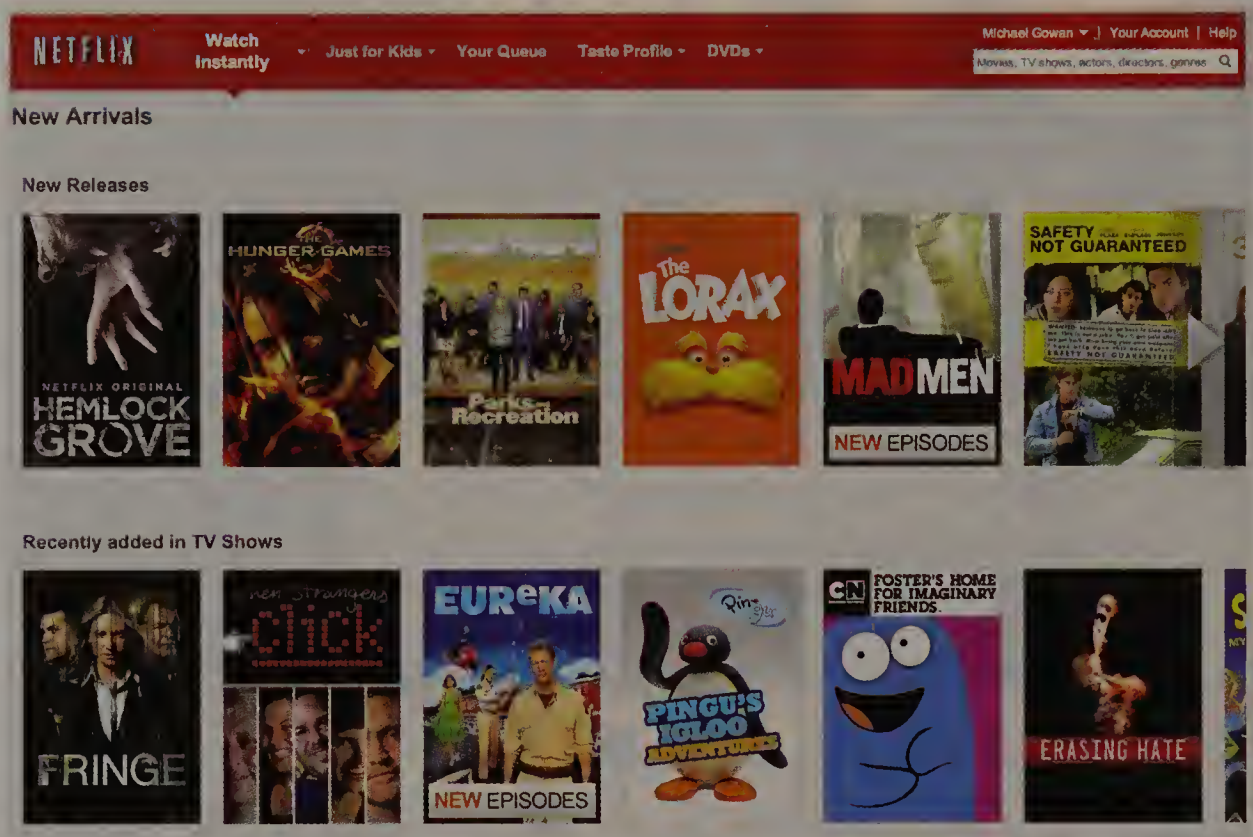


INSTANT ENTERTAINMENT

SELECT THE RIGHT VIDEO-STREAMING SERVICE.

BY MICHAEL GOWAN

When it comes to video entertainment, the question is no longer "What's on?" but instead "Which of the thousands of videos available to me at this very moment do I want to watch?" Thanks to on-demand streaming and download services available over the Internet, you have more control than ever over your viewing choices.

In fact, the real question is which video-streaming service to use. The answer depends on what you like to watch and where you want to watch it.

Among the four major video services—Amazon Instant Video, Hulu, the iTunes Store, and Netflix—you'll find differences in the selection of movies and TV shows. Some have the latest films; others have more TV. With some you pay per download, while others charge a flat monthly fee for all-you-can-watch.

If you have dependable Internet access, a streaming service such as Amazon Instant Video, Hulu, or Netflix makes sense. But if you want to watch on a plane or need a diversion on hand for a family car trip, downloaded files will make your life much easier.

Also consider the devices you'll use to watch video. For example, if you have an Apple TV, Hulu, the iTunes Store, and Netflix are options, but Amazon Instant Video isn't.

For the most part, no single service will meet all of your video needs. Luckily, you don't have to pick just one.

Amazon Instant Video

Amazon (go.macworld.com/instantvideo) approaches streaming video the same way it does every other product category: It offers everything, all the time. For one-stop shopping, Amazon is the place to go. You can rent or buy videos, as well as subscribe to an all-you-can-stream package.

You can play the videos on a wide variety of devices, including computers; Roku and other set-top boxes (but not an Apple TV); connected HDTVs and Blu-ray players from LG, Panasonic, Sony, and other makers; TiVo DVRs; iOS devices; and, of course, Amazon's Kindle Fire.

Amazon offers 150,000 movies and TV shows. You'll find all the big-name films, sometimes even before they are available on Blu-ray or DVD. Amazon also boasts exclusive streaming deals for popular TV series such as *Downton Abbey*, *The Good Wife*, and *Justified*, and has announced that it will be developing original shows as well.

For new releases, usually you pay $15 (prices vary) to buy a version that you can watch as many times as you want. Rentals start at $3, though newer and popular videos run $4 or $5; keep your eyes open for deals that drop some rentals to $2 or less. You have 30 days to start watching a rental and 24 or 48 hours to finish once you click to play.

Amazon stores purchases and rentals in your library, so you can access them from multiple devices. The cloud storage also offers backup in case your file is damaged.

The company's Prime Instant Video serves as a Netflix competitor. Included in the Amazon Prime $79 yearly fee for two-day shipping, it offers 38,000 streaming movies and TV shows. But it lacks many of Netflix's refinements, such as a kid-friendly section, and only about 1000 of the videos have

subtitles. If you share your Prime benefits with family members, they don't get the Prime Instant Video access; only you do. But you can stream two videos simultaneously on one Amazon account.

Hulu

Hulu (hulu.com) can act as a cable or satellite TV replacement, or simply serve as a backup when your DVR fails to record the latest episode of your favorite show.

You can watch some shows on your computer for free (with commercials), or you can subscribe to Hulu Plus for $8 a month to break free of the browser and access a deeper catalog. Despite the subscription fee, however, Hulu Plus streams still include ads.

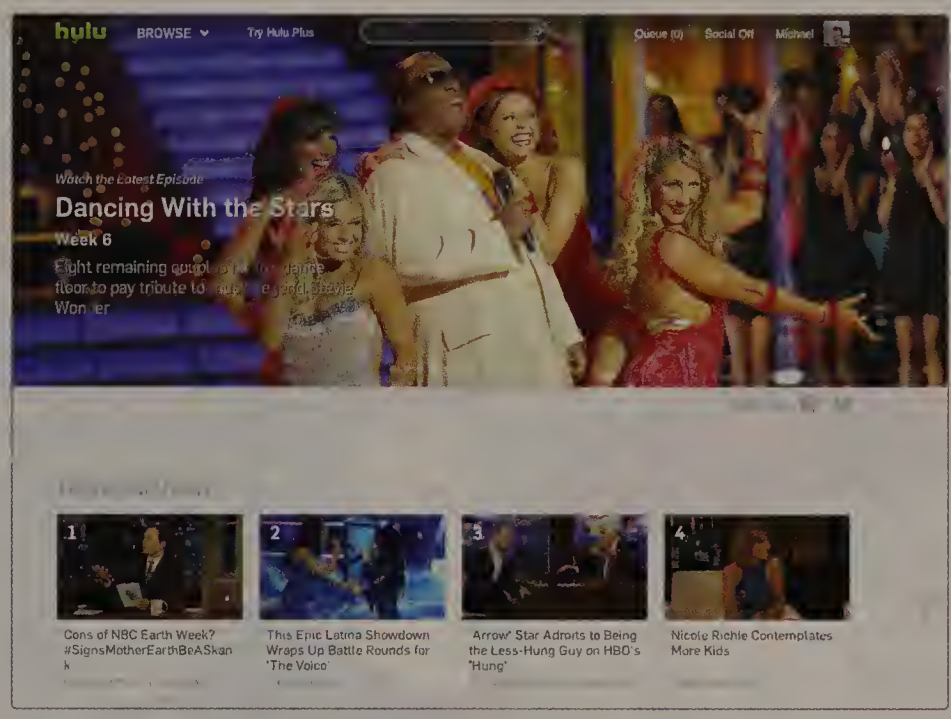
Hulu Plus works on the PlayStation 3, Wii, Wii U, and Xbox 360; set-top boxes such as the Apple TV and Roku; TiVo DVRs; connected HDTV sets and Blu-ray players from LG, Panasonic, and other makers; and iOS, Android, Windows Phone, and other mobile devices. It supports pretty much everything.

TV junkies will find more than 70,000 episodes from 2500 TV series (in addition to 4200 movies, just for fun). You'll find shows from ABC, Fox, NBC, PBS, BBC, and many other networks. The real benefit of Hulu, though, is the ability to stream current-season episodes of hits like *Castle* and *Parks and Recreation*, which you won't find on Amazon or Netflix until after the season is over.

Hulu Plus subscribers get access to more videos than the free Web version serves up. In most cases, free users can see the last five shows of a current season or select episodes of a show no longer in production. Subscribers can take in the entire run of classics like *Miami Vice* and *The X Files* (many of which are also available through Amazon Prime Instant and Netflix). The catalog suffers from a few key omissions, particularly current shows from CBS, FX, and AMC (*Breaking Bad, Mad Men*, and *The Walking Dead* are nowhere to be found).

Hulu's exclusive deals have an international flavor, including several British shows. The service is also on the original-content bandwagon, offering *Spoilers with Kevin Smith* (coming in June) and *The Awesomes* (a comedy cowritten by Seth Myers, due in July).

You can favorite a series and find it quickly through the top menu. You can also queue up shows to watch later (but you can't watch shows offline). Hulu recently added a Kids section, and Plus subscribers can watch those shows ad-free. The service recommends shows based on what you've watched before, too, and you can rate shows to help improve the recommendations.



Substantial Selection On Hulu, you'll find a rich catalog of popular TV series from networks such as ABC, Fox, NBC, PBS, and BBC.

iTunes Store

If all of your equipment has an Apple logo on it, the iTunes Store makes renting or buying videos—and enjoying them wherever you are—simple.

In sheer numbers, the iTunes Store can't be beat, with more than 45,000 films and 190,000 TV shows to buy. HD versions of new movies usually cost $20

BUT WAIT, THERE'S MORE

Amazon, Hulu, the iTunes Store, and Netflix aren't the only game in town, just the most popular. Consider these other streaming options if the big services don't tickle your fancy.

Vudu: On Vudu (vudu.com), you'll find the latest movies and television shows to buy or rent. You can rent movies for $1 to $6, or rent TV series for $2 to $3 an episode. If you'd rather own items, you can buy movies for $5 to $25, or purchase seasons of TV shows for $17 to $44. The Vudu app comes installed on many HDTVs and Blu-ray players, and you can download it for game consoles, Roku set-top boxes, and iOS and Android devices.

Redbox Instant: For $8 a month, Redbox (redboxinstant.com) lets you stream videos on your computer and on your iOS and Android devices. The difference with this service, however, is that you also get four one-night credits for DVDs from Redbox in-store kiosks. That way, you can watch new releases on disc while enjoying all-you-can-stream older titles, too.

Vdio: A new service from Rdio, the company that offers music streaming subscriptions, Vdio (vdio.com) promises to make finding videos a more social experience by tying in recommendations from your friends. The service will let you rent or buy new movies and TV shows. No pricing has been announced as of this writing.

to buy or $5 to rent, while standard-def movies cost $15 to buy or $4 to rent. Older movies go for less. With rentals, you have 30 days to start watching and 24 hours to finish once you do. You may keep and watch a purchased movie for as long as you want.

You can buy TV episodes for $3 each (but renting is no longer an option). Shows usually become available quickly after their broadcast. You'll find most everything from the major broadcast and cable networks here, including the latest episodes of *The Americans* and *Mad Men,* which you won't find on Hulu. If you plan to get all the episodes in a current season, you can buy a Season Pass to download new episodes automatically.

Playback-device choices are limited to a Mac, PC, iOS device, or Apple TV. For easy access, the iTunes Store adds your purchases to your iCloud account. You don't even need to sync your iPhone or iPad—just download a copy. And a recent update to the iTunes Store allows you to buy a video now and download it later.

Netflix

Netflix (netflix.com) has been streaming video since 2007, and with maturity comes advantages. For Netflix, that means the widest reach of any streaming service, and features that rivals have yet to match.

For $8 a month, you can stream as many movies and TV shows as you please. Netflix doesn't divulge how many videos it has for streaming, but Instantwatcher.com, a site that tracks Netflix streaming titles, shows over 14,000 items. The library is constantly in flux, with new titles added as others "expire." (Similar to competing services, Netflix can offer a video for streaming for only a certain period.)

Netflix's exclusive content deals include top-tier shows such as *Breaking Bad* and *Mad Men*, and it has home-grown shows like *House of Cards* (with Kevin Spacey and Robin Wright) and season four of *Arrested Development*.

Odds are, if you have an Internet-connected media device, it can play Netflix. The service supports set-top boxes including Apple TV and Roku; the PlayStation 3, Wii, and Xbox 360; connected HDTVs and Blu-ray players; TiVo; audio-video receivers from companies like Panasonic and Sony; computers; and iOS, Android, and Windows Phone mobile devices. Netflix offers no offline option.

Netflix's biggest advantage may be in how it helps you find what to watch. The service recommends videos based on movies and shows you've rated and what you've watched recently. Its interface also includes a kid-friendly section focusing on age-appropriate options, and most of its videos offer captions.

With a standard account, you can stream two videos at the same time; the company recently added a family plan, priced at $12 a month, that allows four simultaneous streams. Your streams come in high definition (720p) if your Internet connection can handle it. If your Internet service provider has a special arrangement with Netflix and you own a supported device (such as an Apple TV), you can get up to 1080p ("Super HD" in Netflix jargon).

What to Watch

Finding the sweet spot—access to the movies and shows you want to watch, plus support for the devices you want to watch them on—can seem complicated. Here are a few recommendations to make your choice simpler.

If you love watching newly released movies, go with Amazon or the iTunes Store. The right choice between those two depends on your playback devices.

If you want a lot of shows to fill up your viewing time but you don't want to spend too much, Amazon Prime Instant Video, Hulu Plus, and Netflix are budget-conscious choices.

Finally, plan to use more than one service to meet all your video needs. For example, if you have an Apple TV, you could choose iTunes for new releases and for offline viewing, and turn to Netflix for an all-you-can-watch buffet.

Whichever services you choose, you can be sure that you'll have something to watch, whenever you want it.

FILL IN THE GAPS WITH APPS

If you decide to use Hulu, Netflix, or another streaming service, you won't find every current television show. In many cases, however, you can turn to television-network apps to enjoy the latest shows.

If you have an Apple TV, note that some of the following apps include AirPlay support, so you can extend the viewing to your big screen. For apps that don't include native AirPlay support, you can usually use AirPlay Mirroring to display your screen's content through an Apple TV.

All of these apps are free to download, though many include commercials. Other networks offer apps, too, so check the App Store for your favorite station.

ABC Player (go.macworld.com/abcplayer): ABC's app streams the five most recent episodes of its current shows.

Cartoon Network (go.macworld.com/cartoonnetwork): Through this app you can watch full episodes of selected Cartoon Network shows, including *Adventure Time* and *Ben 10 Omniverse*. Although viewing full episodes requires a participating cable provider, some clips are available without a cable subscription. The app also offers games. AirPlay supported.

CBS (go.macworld.com/cbsapp): Stream full episodes of some, but not all, current CBS shows. For example, you can watch the past three episodes of *The Good Wife*, but only clips from *The Big Bang Theory*.

CW Network (go.macworld.com/cwnetwork): This app offers up to five recent full episodes of some of The CW's current shows, such as *90210* and *The Vampire Diaries*.

Food Network on TV (go.macworld.com/foodnetworktv): Food lovers will appreciate having quick access to the Food Network's recent shows, including the popular *Iron Chef America* and *Chopped*. The app integrates links to recipes, as well. AirPlay supported.

Fox Now (go.macworld.com/foxnow): Fox's second-screen app—which offers bonus footage and social features—now allows streaming of some full episodes, but only if you subscribe to cable services through AT&T U-Verse, Mediacom, or Verizon FiOS.

HBO Go (go.macworld.com/hbogoapp): If you subscribe to HBO by way of a participating cable or satellite provider, you can use this app to access HBO's current movies and TV shows. Perhaps even more valuable is the ability to stream past episodes of almost every original series that the network has produced over the years, including *The Sopranos* and *The Wire*. The app recently added AirPlay support.

NBC (go.macworld.com/nbcapp): Watch full episodes of some NBC shows including *Late Night with Jimmy Fallon* and *Hannibal*. The app offers up to five episodes from the current lineup.

PBS (go.macworld.com/pbsapp): Through this app, you can check out PBS shows, including recent prime-time offerings. Some of the available series include past episodes; *American Masters*, for example, offered 12 episodes at this writing. The app supports AirPlay.

Showtime Anytime (go.macworld.com/showtimeapp): As with HBO Go, if you're a Showtime subscriber, you can get on-demand access to this network's movies and series, as long as your provider participates.

Web Hosting made easy

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SEO Injectors built in to help with search rank

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Easily add extra sites and domains

Business-class Email included
100% reliable, spam and virus protected

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Working Mac

Tips, Tricks, and Tools to Make You and Your Mac More Productive

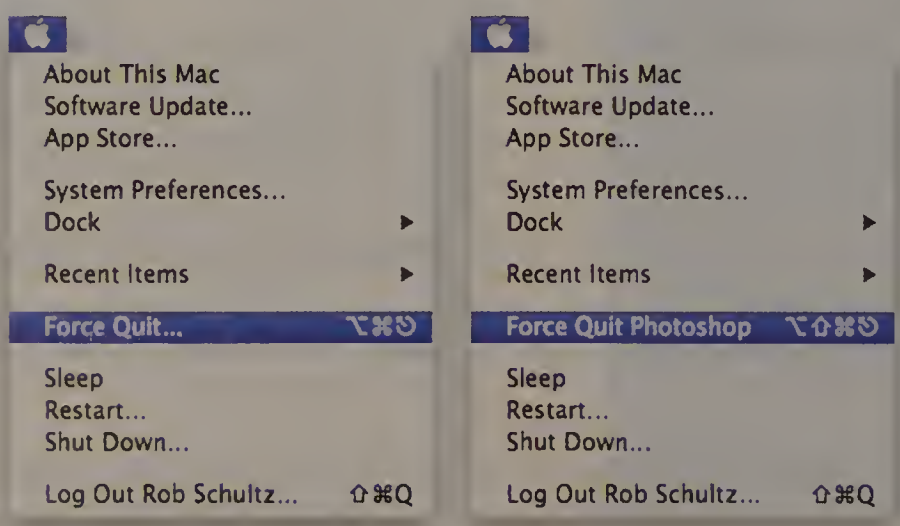
The 7 Best OS X Tricks You're Not Using

These little-known (or frequently forgotten) tips can save you time.

BY SHARON ZARDETTO

It's a tough job, but somebody's got to do it: Find overlooked, underused, or just plain unappreciated OS X tricks. Saving even just a little time on something that you do frequently in OS X can add up to a significant productivity advantage in the long haul. Sometimes I hunt for new OS X tips and tricks. Other times I run across them in the course of my own daily work. Here's a collection that I bet includes items you have missed, too.

1. Force-quit the current app: Pressing <Shift> before or after opening the Apple menu changes the Force Quit command to 'Force Quit [Current Application]'. In the past, I've used a laborious five-step process to quit a current application: Press ⌘-<Option>-<Esc>, select the frozen app in the dialog box (if necessary), click the Force Quit button, click the confirming dialog box, and end by closing the window. But now I'll use this menu trick to save myself those extra steps.



Force-Quit More Quickly Press <Shift> when opening the Apple menu, and the Force Quit command changes to one that force-quits the current app.

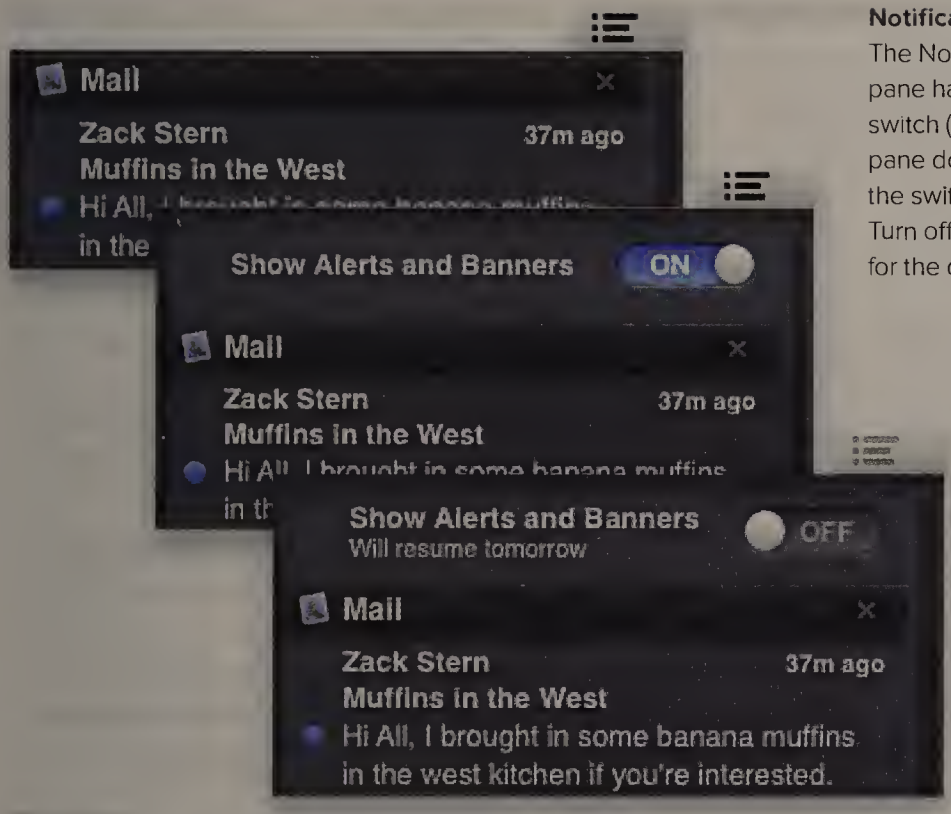
The Apple menu shows a keyboard shortcut for force-quitting your current application. But don't get too excited about it: I've tried that shortcut on five different computers, in OS X Lion and Mountain Lion, to no avail. Only choosing from the menu works.

2. Take a break from Notifications: Want some temporary relief from those helpful yet intrusive notifications that regularly arrive from Apple's Mail, Calendar, Reminders, and other apps? Instead of turning off each one through System Preferences, you can take advantage of a hidden on/off button.

Clicking the Notifications icon in the far right of the menu bar or using a two-finger trackpad swipe (starting at the far right edge of the trackpad) opens the Notifications pane. There's no clue that you can pull it down past its topmost visible category, but you can, using a two-finger swipe.

With a mouse, you can either use the pane's scrollbar or perform the silliest Apple interface action ever: Press (that is,

ILLUSTRATION BY TAYLOR CALLERY



Notification Holiday The Notifications pane has an on/off switch (top). Drag the pane down to see the switch (middle). Turn off notifications for the day (bottom).

Saving even just a little time on something you do frequently in OS X can add up to a significant productivity advantage in the long haul.

hold down the mouse button) on the header for the topmost category until the pane scrolls. Then turn off *Show Alerts and Banners*.

As a reminder of its Off state, the Notifications icon turns gray in the menu bar. Notifications helpfully turns itself back on the next day, so you don't have to worry about forgetting to reactivate it.

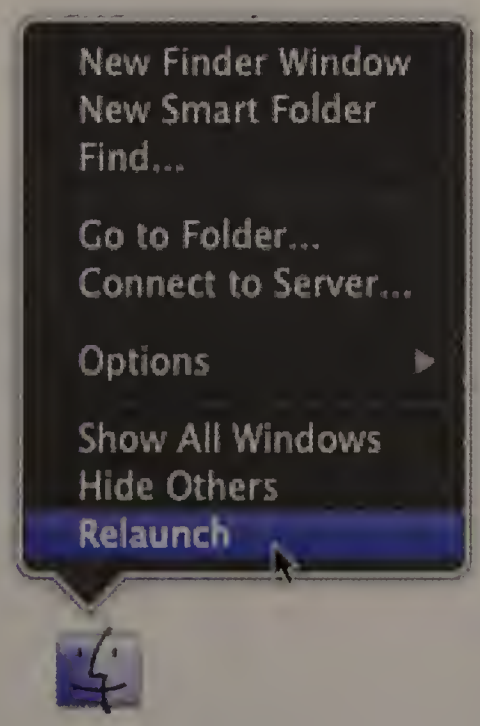
Now that you know what happens in the background, here's a shortcut: You can quickly (and temporarily) turn Notifications on or off with a simple <Option>-click on the Notifications icon.

3. Empty the Trash from the Dock: You don't have to move your mouse pointer all the way across the screen to select *Finder → Empty Trash* if the pointer is down near the Dock. Instead, <Control>-click the Trash to open a contextual menu that includes the Empty Trash command.

The standard Empty Trash command leaves information behind that you—or other people—may be able to recover by using special utility software.

If you're disposing of sensitive data and you want to erase your files more securely, press ⌘-<Control> while clicking the Trash icon and then select *Secure Empty Trash*.

4. Relaunch the Finder: If the Finder freezes, or if windows go wonky when you change views, relaunching the Finder is an almost sure-fire cure. To get to the Relaunch command, press <Option> and click the Finder icon in the Dock for its menu.



Relaunch from the Dock Press <Option> before opening the Dock's Finder menu to see the Relaunch command.

Note that, unlike other <Option>-key Dock menu changes, this particular one requires you to press <Option> before opening the menu.

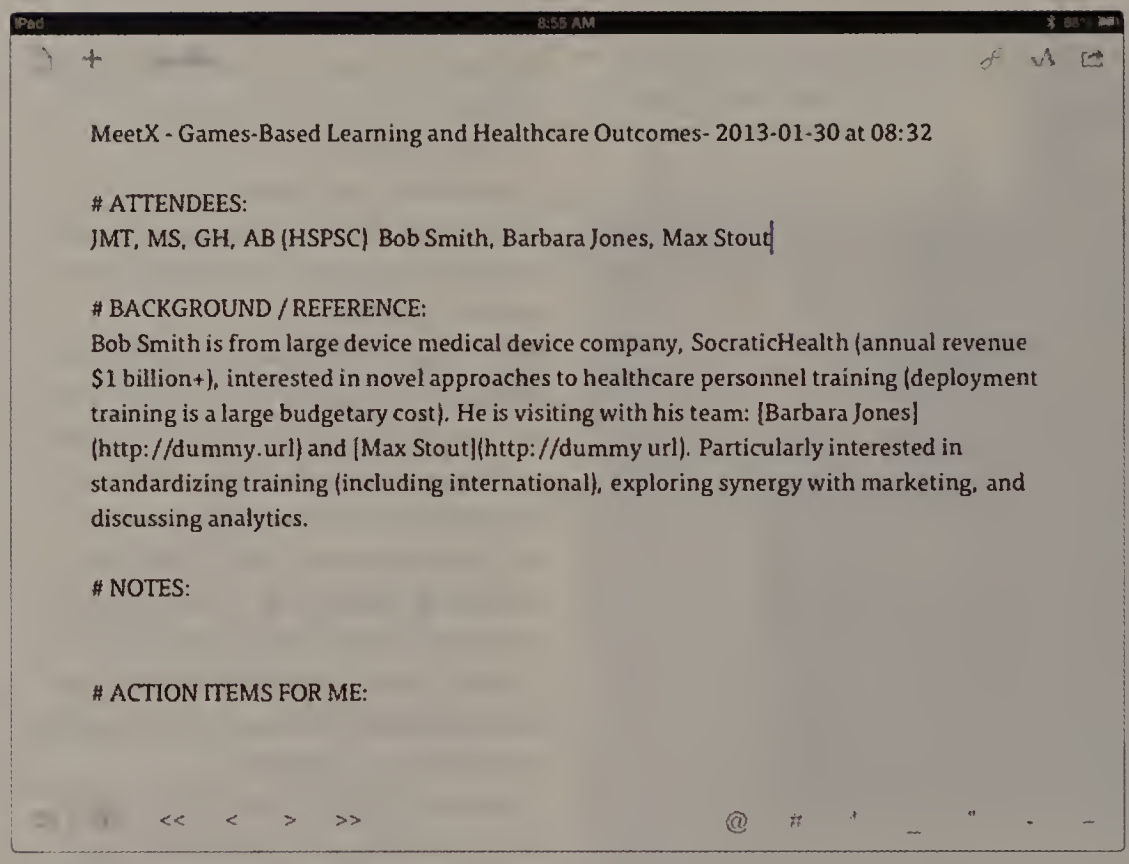
5. Rearrange your status icons: I have a collection of various utilities that, along with OS X, put "status icons" in the menu bar at the top of my screen. You probably do, too. At the far right, you'll see some immovable icons: Notifications, Spotlight, and Users (if you have multiple accounts on your Mac). Other icons appearing there are usually positioned according to when you installed or activated their begetters.

But the order is by no means immutable: ⌘-drag an icon, and others will scoot out of its way so that you can drop it where you like. The general constraint is that OS X's icons will remain to the right of any third-party items.

Make sure that you drop the icon in the menu bar; otherwise, it will disappear with a puff of smoke. You can reverse most such accidental deletions by going to System Preferences and turning the item back on from the relevant pane (Date & Time, for instance, or Sound). You might, however, need to relaunch non–OS X items to make them reappear.

6. Go directly to your system info: Need to look up your Mac's processor type or speed, or check your laptop battery's charge cycles? Press <Option> before or after opening the Apple menu to change the 'About This Mac' item to 'System Information'. (Otherwise, getting to System Information takes several steps: Choose *Apple Menu → About This Mac*, click *More Info*, and then click *System Information*.)

7. Log out quickly: Pressing <Option> when you use the Apple menu also causes the Log Out command to loses the ellipsis that signifies an impending dialog box. As a result, you can skip the 'Are you sure you want to quit...' dialog box. You will still have a chance to save any changed documents before the logout proceeds.



Note-Taking Template The basic template for my meeting notes, saved in TextExpander and filled in during the meeting.

Take Meeting Notes That Really Work

One doctor makes it happen using his iPad, a keyboard, and a small collection of convenient and inexpensive apps.

BY JEFF TAEKMAN, M.D.

As a doctor, educator, and administrator, I attend a lot of meetings. That means taking lots of meeting notes, and—after the meetings are over—making sure that all of the action items we've decided on get done. Over the years, I've tried many different ways to accomplish these tasks.

For years, I hauled my MacBook Pro around with me, relying on various apps to capture notes and to-do's. Next, I transitioned to taking handwritten notes with Livescribe's $120 Echo Smartpen (★★★★; go.macworld.com/echo), which translated my scrawl into computer-readable graphics. Unfortunately, I have awful handwriting, and my notes were illegible. To make matters worse, using that workflow offered me no good way to submit my action items to Omni Group's $80 OmniFocus (www.omnigroup.com), my task manager of choice.

Finally I devised an effective workflow: Using an iPad and Zagg's $130 Profolio+ keyboard (www.zagg.com), I take notes that are immediately available—in a readily searchable format—on all of my other devices, and to-do items migrate into OmniFocus very smoothly. Here's how it works.

My Apps

I have two note-taking apps on my iPad and iPhone: Drafts and Notesy.

Agile Tortoise's Drafts for iPad and iPhone ★★★★½; $3; go.macworld.com/draftsapp) is my main note-taking app on both mobile devices because of its flexibility and compatibility with the utility TextExpander. After launching Drafts, I can start entering information.

Afterward, I use the app's built-in conduits to send text to Giant Yak Software's $5 Notesy (notesy-app.com). Notesy syncs via Dropbox (www.dropbox.com), which means that any text that Notesy contains is available on all of my assorted Dropbox-connected devices.

The last app I use is SmileOnMyMac's TextExpander (★★★★½; $5; go.macworld.com/textexp) for iPhone, iPad, and Mac. TextExpander understands short keyboard sequences (snippets) that expand to fill in words, lines, or pages of text.

My Meeting Template

I have one such snippet that serves as a template for all of my meeting notes. Here's what it looks like:

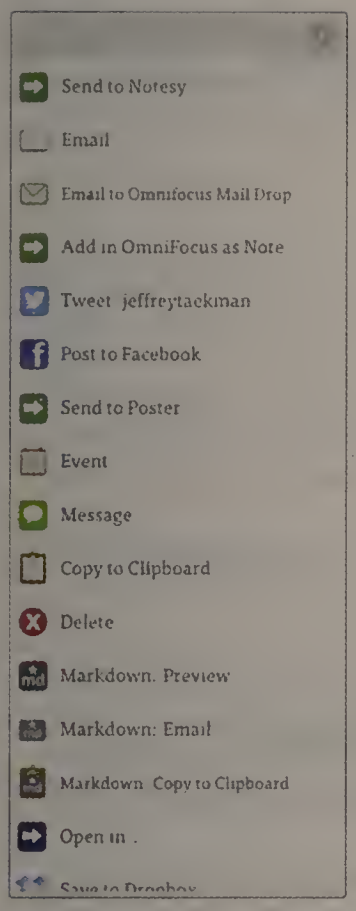
```
MeetX – Untitled – %Y-%m-%d at %H:%M
  # ATTENDEES:
  JMT
  # BACKGROUND / REFERENCE:
  # NOTES:
  # ACTION ITEMS FOR ME:
  # ACTION ITEMS FOR OTHERS:
```

The first part of my snippet's first line marks the note as a meeting. Since I use 'MeetX' instead of 'meeting', when I search for 'MeetX', I see only notes with that heading instead of every document containing the text string *meeting*. The snippet automatically fills in the current date and time at '%Y-%m-%d at %H:%M'.

A hashtag (Markdown code for a heading) precedes each line after the first one; hashtagged lines show up as bold text in Markdown-based applications. The 'JMT' in the Attendees section is me (since I'm present at any meeting where I take notes).

Because I synchronize TextExpander snippets across my Mac, iPad, and iPhone

Using an iPad and Zagg's $130 Profolio+ keyboard, I take notes that are immediately available—in a readily searchable format—on all of my other devices.



Sending Notes to Other Apps Drafts allows you to send text to all sorts of destinations, including OmniFocus.

using Dropbox, my template is available on any device that I carry to a meeting.

My Process

To take notes at a meeting (or on a teleconference), I launch TextExpander first and Drafts next. I expand my template (by typing `.mtx`), fill in a title, and am ready to go. When I prepare for a meeting in advance, I type in my reference material under the appropriate heading, and fill in the remaining fields during the meeting.

When the meeting is over, I choose the *Send to Notesy* option in Drafts to synchronize my meeting notes across all my devices via Dropbox. In other words, I use Notesy as a conduit for my notes but rarely for writing them.

If I want to take meeting notes on my Mac, I use Brett Terpstra's nvALT (donations accepted; go.macworld.com/nvalt), a great text editor with a speedy search function. I've configured it and Notesy to store notes in the same default folder in Dropbox. When nvALT launches, I start typing; it automatically begins searching the folder of notes for the text string I type. So by typing `meetx`, I'll find all of my meeting notes almost instantaneously.

Using this workflow, I can take notes in Drafts on my iPad (or iPhone) or in nvALT on my Mac, and synchronize them across all of my devices. TextExpander ensures that the formatting remains consistent and that the notes are easy to search.

My Action Items

My next step is to make sure that I do what I need to do after the meeting.

The key here is OmniFocus and its Mail Drop service, which let me email to-do items to myself. To make this work, I sync OmniFocus with the Omni Sync Server (www.omnigroup.com/support/sync). You have to apply to use the Mail Drop service; when I did, I received my invitation in a matter of minutes. Once accepted, I set up a unique email address that serves as my direct link to the Omni Sync Server.

Using the latest version of Drafts for iPad and iPhone, I configured a customized email action called 'Email to OmniFocus Mail Drop'. Triggering this action sends a given note to my personalized OmniFocus email address, using the first line of the note as the subject.

When the meeting is over, I select my customized email action in the notes document within Drafts. When I next open OmniFocus, the item is waiting for me as an action in my inbox. Even cooler, the complete meeting text shows up inside the action's Notes field. If the original meeting notes have multiple actions embedded in them, I spend a few minutes processing the set into individual unique actions.

Alternatively, with OmniFocus installed on my iPad, I can select 'Send to OmniFocus as Note' from within Drafts, to launch OmniFocus; and my meeting notes appear in the appropriate section of a new action. The only thing left for me to do is to type in the title of the action.

You can, of course, adapt this plan to your own workflow, but the general idea still applies: Send drafts to Notesy and from there to whatever other apps and services you use.

Though this workflow takes a bit of effort to set up, the payoff is immense. Over time, I have used it to accumulate hundreds of potential projects, text snippets, and more. Many of them would have been lost if I hadn't had a quick and convenient way to capture them.

Knomo Kobe Soft Messenger Bag

With a body composed of soft, full-grain leather and a lightweight fabric made from recycled plastic bottles, there is nothing about Knomo's $325 Kobe messenger bag (www.knomobags.com) that doesn't say "classy." The Kobe is even designed to mold itself to your body, making it effortlessly comfortable to carry. This 2.6-pound bag can accommodate 15-inch laptops. The front flap is outfitted with two magnetic buttons that keep it firmly shut. The flap lifts to reveal two leather pockets—one with a zipper on top, and the other with two pen pouches and two small pockets. The main compartment includes one large zippered pocket that runs along the front portion of the bag, as well as three pouches made from a flexible banded fabric. A quilted and padded sleeve section holds your laptop or tablet. If you can swallow the price tag, you'll likely get your money's worth: This understated yet professional bag's solid construction and appealing design qualify it for service as your daily carry-all.—AMBER BOUMAN

How to Find a Missing Mac

Track down your lost laptop with Apple's Find My Mac app.

BY SERENITY CALDWELL

Found in the Clouds Turn on Find My Mac from the iCloud preference pane.

If your computer vanishes, don't despair: If you've enabled Apple's Find My Mac, you can track the system, remotely lock it, and even send messages to your Mac's screen.

Turn On Find My Mac

You may have enabled the Find My Mac service when you signed up for a free iCloud account (www.icloud.com). To find out, open the iCloud preference pane in System Preferences. If you're already logged in to iCloud, confirm that you've selected the *Find My Mac* checkbox; if you're not logged in (or don't have an iCloud account), you can take the necessary steps from this screen. After turning on Find My Mac, you're all set.

Zero In on Your Mac's Location

If the worst happens to your Mac, launch the Find My iPhone app on your iPad or iPhone and sign in. Alternatively, log on to the iCloud.com site in any Web browser and click the *Find My iPhone* button. Despite its product-specific name, this option lets you find any iOS device or Mac.

To see a list of devices on iCloud.com, click the *Devices* button. The My Devices list appears automatically if you're using the iOS app. Here you'll see all devices—iPhone, iPad, iPod touch, and Mac—tied to your account that have the service enabled. When Find My iPhone locates a device, a green dot appears next to the entry for it; a gray dot means the device is offline or still unfound. Below the device's name, the app lists when it was located, or the fact that it remains unlocated.

On your iOS device, select a device name to see it on a zoomable map. You can swipe the curled corner at the bottom of the map to reveal the option to switch between Map, Satellite, and Hybrid views.

On iCloud.com, a map shows the location of your devices. Click a device's name under My Devices to see more options. In the iOS app, click the blue arrow next to your device's name on the map.

Take the Next Step

Find My Mac gives you three options once you've located a lost Mac.

Play a sound: The option to play a sound can be handy if you've misplaced your laptop somewhere in the house.

Lock from afar: If you opt to lock your Mac remotely, the system will shut down when it receives the lock command. The next time someone tries to start up the Mac, it will boot into recovery mode and ask the user to enter the correct passcode. If the user enters the correct passcode, the Mac will reboot normally.

Go nuclear: The third option, Erase Mac, lets you completely (and securely) erase all data and settings from your Mac. It also sets a four-digit passcode that lets you regain access to your Mac if you ever recover it. You should use the Erase Mac option only as a last resort.

The Find My Mac service will send an email message to the address on file for your Apple ID when you perform any of these actions.

If You Can't Locate the Mac

If the service can't locate your Mac, you won't see a map, but you may still choose Play Sound, Lock, or Erase Mac. In that case, the action won't take effect until the Mac connects to the Internet. To receive an email notification when your Mac does come online again, select the *Notify me when found* checkbox.

Cautions

As useful and convenient as Find My Mac is, it comes with a caveat: Should a malicious party compromise your iCloud account, they could remotely wipe your Mac. So if you do enable this feature, make sure that your iCloud account has a strong password; and for best results, enable Apple's two-step authentication (see go.macworld.com/2step).

Type Special Characters in OS X

Get fast access to accents, bullets, emoji, and more from your keyboard.

BY DAN FRAKES

Your Mac's keyboard lets you easily type standard characters. But OS X also makes hundreds of special characters available. Here are three ways to access symbols and special characters in OS X.

Hold Down the Key

In OS X 10.8 Mountain Lion, you can type characters that are accented or modified versions of common letters by holding down the base character. For example, if you hold down the E key for a second or so, a popover displaying the available variations on the letter E will appear. Click a variation, or press the number corresponding to it, to type that character. On a U.S. English keyboard, this trick works with the A, C, E, I, L, N, O, S, U, Y, and Z keys.

Need a special character? If you hold down the E key for a second or so, a popover displaying the available variations on the letter E will appear.

Use Keyboard Viewer

For other characters accessible via the keyboard, you can turn to OS X's Keyboard Viewer. Before using this feature for the first time, go to the Keyboard pane of System Preferences and, on the Keyboard tab, confirm that the box for *Show Keyboard & Character Viewers in menu bar* is checked. Activating this option adds the Input Menu to the menu bar.

Choose *Show Keyboard Viewer* from this menu, and you'll see an on-screen representation of your keyboard. (This virtual keyboard matches your physical keyboard's layout.) By default, you'll see standard keys; but when you press modifier keys—<Shift>, <Option>, ⌘, or <Control>—or combinations of modifier keys, the keys on the screen change. For example, pressing <Shift> and <Option> changes the K key to an Apple symbol (), so you can type that symbol at any time by pressing <Shift>-<Option>-K, even if Keyboard Viewer isn't open. (Alternatively, you can click the key in Keyboard Viewer to type it immediately.)

The characters visible in Keyboard Viewer are the ones available in the frontmost app's current font. The same key combination can produce different results in a different app or font.

Use Character Viewer

For characters that you can't access from the keyboard, go to the same Input Menu. Choose *Show Character Viewer*, and you'll see a window listing every special character that your Mac is able to produce, organized by category. Select a category on the left, and you'll see all of the characters available within that category. Double-click a character to enter it in the frontmost application.

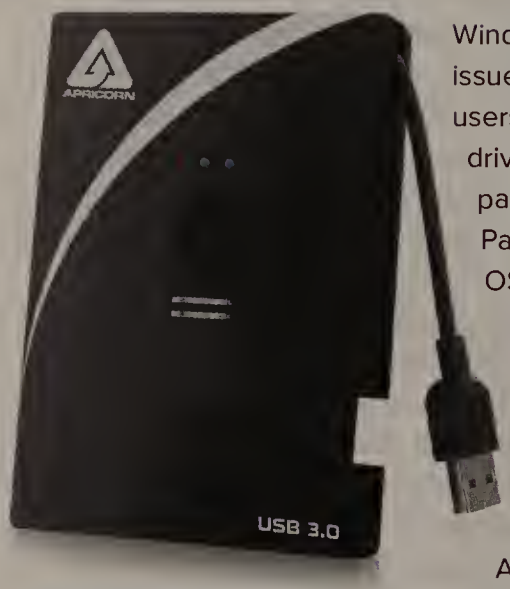
Character Viewer offers a few other useful features as well. The Recently Used list lets you reuse recently typed characters more easily, and the Favorites list includes any character that you've designated as a favorite. The details area on the right shows a larger version of the selected character—along with more information about it, similar characters, and variations available in other fonts. (You can right-click any character to copy its detailed information to the clipboard for pasting elsewhere.)

Character Viewer's most useful feature may be its search field. If you know the name of the symbol or character you're looking for, but you can't find it, type part of the item's name—**`euro`** or **`smil`**, for example—and the tool will show only matching characters.

Beyond the Keyboard
The Character Viewer in OS X allows you to see all of the special symbols that are available to you.

Reviews

Hardware and Software for All Your Business Needs



Hardware

Apricorn Aegis Bio 3.0

●●●½; $199 (500GB), $219 (700GB), $249 (1TB); Apricorn; apricorn.com

The pocket-size Apricorn Aegis Bio 3.0 external hard drive combines solid performance with biometric security features (including a built-in fingerprint scanner) that safeguard access to your data.

The drive can store up to five different fingerprints, for multiuser access. You can add fingerprints at any time; but to do so, you first must scan a fingerprint that someone has already registered on it.

After enrolling the fingerprints, you can easily unlock and access the Aegis Bio 3.0 with one slow swipe of your finger—usually. To lock the drive, you simply press and hold down a button located directly under the scanner.

The encrypted drive protects its data even when detached from its biometric component.

The Aegis Bio is natively formatted in NTFS, so while Windows users will face no issues using this drive, Mac users must either reformat the drive or install extra third-party software such as Paragon's NTFS so that Mac OS X can write to it.

The drive's built-in USB 3.0 makes transferring large files to and from the drive a breeze. The Aegis Bio's write speed was 103.2 MBps on AJA System Test, and its read speed was 105.3 MBps. It beat other external drives with USB 3.0 connections that we've tested, such as the 1TB G-Technology G Drive Mobile and the 1TB Seagate Backup Plus. Motor sounds from the drive were scarcely noticeable throughout the tests, and the unit remained relatively cool.

The Aegis Bio costs more than rival portable drives like the 1TB Seagate Backup Plus, which sells for just a bit over $100—but the Aegis Bio is aimed at users with security concerns.—JEFF SANDSTOE

Logitech Easy-Switch Keyboard K811

●●●●½; $117; Logitech; logitech.com

At 11.4 inches wide, 5.1 inches from front to back, and less than 0.5 inch thick, the Logitech Easy-Switch Keyboard K811 is smaller overall than Apple's Wireless Keyboard. The backlit, Bluetooth-ready Easy-Switch is nearly flat, front to back, for better ergonomics. Its body feels sturdy and solid.

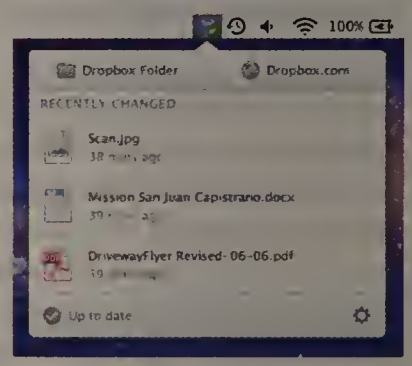
According to Logitech, a 3-hour charge of the Easy-Switch's rechargeable battery lasts for between ten days (with key backlighting on full) and a year (with backlighting off).

The Easy-Switch pairs with multiple devices via Bluetooth, and switching between them is easy (hence the keyboard's name). You can pair it simultaneously with any combination of three Macs, iPhones, iPads, iPod touch models, or Apple TVs. The <F1>, <F2>, and <F3> keys are labeled with the Bluetooth symbol, and each corresponds to one of your paired devices. Pressing one of those keys immediately connects the Easy-Switch to the device assigned to it.

The Easy-Switch has a full complement of standard keys, all in their proper locations. Overall, the keyboard's keys rank among the best Chiclet-style keys I've used. They're superior to those on Apple's current keyboards.

The Easy-Switch lacks the luxuries of an extended desktop keyboard, such as a numeric keypad, but it compensates for those omissions with multidevice Bluetooth support and a design that leaves it small enough to toss into your bag. These qualities make it sufficiently versatile to be the primary keyboard for your desktop Mac, your MacBook, and your iPad or iPhone—without requiring you to sacrifice full-size keys or a standard key layout.—DAN FRAKES

Easy-Switch Keyboard



Software

Dropbox 2.0 for Mac

●●●●; 2GB free, Pro plans start at $10/month for 100GB; Dropbox; dropbox.com

Dropbox, the file storage and synchronization service, often updates its features, but its 2.0 update actually changes the desktop interface to simplify accessing the service and sharing items with others.

You get 2GB of free storage to start, and you can add free storage (to a total of 18GB) by referring friends. Dropbox also offers paid storage tiers, as well as a version with special features for teams. Its complete Web interface allows you to download, delete, and work with items; show their

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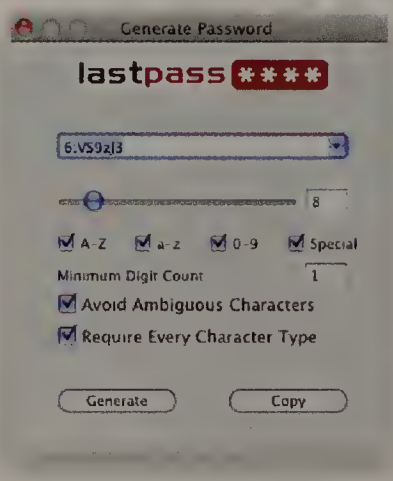
history; and even restore previous versions. You can use the Web interface to share files or folders in your Dropbox with other people.

The new client software improves the menu in several ways. When clicked, the two buttons at the top open the local Dropbox folder and the Web interface, respectively. Below that information is a brief list of the last few items other people have shared with you, plus a Recently Changed list; both sections now sport file icons indicating what sorts of files they are. At the bottom of the menu, a status indicator tells you whether the service is syncing or is up-to-date, and a gear menu leads to the listing of available space in your Dropbox and to Preferences.

When you roll your pointer over a recently changed item, a Share button appears. Clicking the button launches your browser to finish the sharing process in the Web interface.

I'm mostly pleased with the updated interface, but I wish that the space-used indicator were in the status line, rather than in the Preferences menu. Disappointingly, the client programs still can't tell you when they need updating; the software automatically updates, but the company is often slow to push out new versions.

Dropbox's effortless synchronization and backup make it one of the most convenient services for people who work on multiple machines. The updated client's improved access to local and Web Dropboxes improves performance, and the addition of Share buttons to the menu items raises the profile of this excellent feature.—TOM NEGRINO



LastPass 2.025

♦♦♦♦; free (Premium service $12/year); Marvasol; lastpass.com

Unlike password managers that store your data in a file and use third-party cloud providers like Dropbox to synchronize it among different devices, LastPass is entirely Web-based. The service saves your information directly to its servers, from which the data is available any time you need it.

To safeguard your privacy, the company ensures that any data you pass to its service undergoes encryption using your master password before leaving your computer.

The absence of a client app means that most interactions between LastPass and its users happen inside the browser—and the company makes various extensions available for such browsers as Safari, Chrome, Firefox, and Opera. In iOS, however, Apple's sandboxing policies require LastPass to offer a universal app; it's free, but available only to subscribers to the company's Premium offering.

Upon registration, the app allows you to set up a personal profile containing any piece of information about you that might be useful in filling out a Web-based form—your name, address, date of birth, credit cards, and so forth. You can set up multiple profiles.

LastPass offers a convenient feature for generating secure passwords that you can save directly into your profile, simplifying the task of creating separate and random credentials for each site. When you return to the site, even from another computer, the app remembers your details and logs you in automatically.

With its ease of use and numerous features, LastPass is a great password manager for both beginners and experienced users. I hope that the attractive pricing will help convince hesistant users to give this outstanding way of managing their entire online presence a go.—MARCO TABINI

CleanMyMac 2

♦♦♦♦; $40; MacPaw; macpaw.com

MacPaw's CleanMyMac 2 scans and removes accumulated digital fluff from your Mac—unused language support files, developer-oriented files, service copies of your iPhoto images, and more. The utility can perform seven types of scans (Automatic Cleanup, System Cleanup, Large & Old Files, iPhoto Cleanup, Trash Cleanup, Extensions Manager, and Eraser), and for each type you can configure what files are cleaned and removed.

When I ran CleanMyMac 2 on a 2006 Mac Pro with OS X 10.7.5 and a 2011 MacBook Pro with OS X 10.8.3, it removed 17.17GB and 6.64GB, respectively, of extraneous files, plus 2GB of extraneous files from my 40GB iPhoto library. Afterward, the systems ran as smoothly as they had before.

That's not to say it couldn't be better. Finding the Preferences menu takes some exploration and discovery. CleanMyMac 2 also lacks the ability to run all of its tests on external volumes—although you can empty the trash files on external drives, other tests (such as Automatic Cleanup, System Cleanup, and iPhoto Cleanup) aren't available.

Still, though CleanMyMac 2 isn't perfect, it achieves what it sets out to do—remove the detritus of unwanted files from your Mac, and free up some drive space in the process. It offers considerable configuration options with regard to what types of files it addresses and removes in the process. If its developers can wrangle the user interface into a more manageable space, and allow for full tests on external volumes, they'll have a clear lead on other Mac utility all-in-one/spring-cleaning suites seeking the same customers.—CHRIS BARYLICK

IT STARTS WITH A WISH
IT CAN END WITH A CURE

Marcia Cross
Stand Up To Cancer
Ambassador

STAND UP TO CANCER

THE SAFEWAY FOUNDATION

Stand Up To Cancer is a program of the Entertainment Industry Foundation, a 501 (c) (3) charitable organization.

$2 from the sale of the $2.99 reusable bag will benefit prostate cancer research.
Photo by Randall Slavin

1 in 6 men will be diagnosed with prostate cancer in his lifetime. When you choose this limited-edition bag, you're supporting vital research to help find a cure. Available at your local Safeway stores during the month of June, while supplies last.

To help The Safeway Foundation and Stand Up To Cancer, and to get the facts about prostate cancer, go to SafewayFoundation.org.

Playlist

Everything You Need to Know About iPods, iTunes, and Mac-based Entertainment

The iTunes Store Turns 10

How Apple reinvented the music business.

BY MICHAEL GOWAN

As I write this, I'm enjoying a playlist that I easily created from the thousands of songs on my iPhone. But making a playlist wasn't always so simple: Once upon a time, crafting the perfect playlist for your MP3 player was an epic project. You had to rip the songs from a CD onto your computer, find sources—legitimate and otherwise—for tracks you didn't own, and then hope everything was in the right format to play on your device. Apple changed all that at the dawn of the 21st century in part by launching the iTunes Music Store.

A mere ten years ago—on April 28, 2003—Apple opened the iTunes Store (then called the iTunes Music Store) and changed the way we buy music. The store arrived with just 200,000 tracks; in the ensuing decade, that library has grown to more than 35 million songs. You can even download those tracks over your phone if you want—no computer needed.

The store "revolutionized the distribution of digital content," Peter Oppenheimer, Apple's CFO, told Wall Street analysts when announcing Apple's latest quarterly earnings. Besides those 35 million songs, which are available in 119 countries, the store sells 60,000 movies in 109 countries, and 1.75 million books in 155 countries. By Oppenheimer's math, the $4 billion in quarterly billings last quarter makes iTunes the world's largest digital content store.

> Expect Apple to dominate digital music for a long time to come. iTunes is now entrenched in the way that many people think about music.

Still, the iTunes Store tale begins with music. So it's fitting that, on the tenth anniversary, we're on the cusp of another shift in digital music, with streaming likely to replace downloads as the dominant way to consume music. But before we look ahead, let's look back at what was.

The Way We Were

Before the iTunes Music Store hit the scene, you could subscribe to services that offered a set number of downloads a month. But most of the songs came with limits on what you could do with that music and where you could listen to it.

As a result, many people tried the peer-to-peer networks that emerged in the wake of the file-sharing service Napster. Through such networks, you could find and download almost any track you wanted. You didn't have to buy an entire album or deal with digital rights management (DRM) schemes that prevented you from listening on your MP3 player or burning a track to a CD. And you didn't have to pay for songs—which was, in almost every case, illegal.

Many other start-ups tried to find the right mix of selection, ease of use, and pricing to entice listeners into legal digital music, says Russ Crupnick, an analyst with research firm NPD Group. It took Apple to find the magic combination.

Changing the Music Industry's Tune

Crupnick credits Apple's digital music ecosystem with making the difference. The company didn't just launch a store. It built that retail effort directly into its iTunes music software and made sure that the songs you bought from iTunes worked seamlessly with the iPod.

Apple also convinced record labels to buy into some important innovations as well, including letting iTunes shoppers

transfer files to more than one device and burn tracks to CDs (with some limitations, of course). Before the iTunes Music Store's arrival, you could do those things only if you had ripped music from a CD or downloaded a track without DRM.

Digital downloads also let listeners pick and choose which songs they wanted, a dramatic change from the album-centric models we'd grown used to from records, tapes, and CDs. "iTunes enabled people to skip the filler tracks and go straight to the killer tracks," Mulligan says.

How successful was the iTunes Music Store? Look at all the copycats it spawned. Microsoft, Virgin, Real Networks, Sony, and Walmart all started digital download services. But only iTunes worked with the iPod, and ten years later, only iTunes remains relevant. In April, NPD reported that Apple still enjoys a 63 percent share of the market for paid music downloads. (It enjoys similarly sized chunks of the market for movie and TV downloads—65 and 67 percent, respectively, NPD says.)

A Pirate's Life

The iTunes Music Store came along at a time when piracy plagued the music business. Wider access to broadband gave piracy a boost, contends Josh Friedlander, vice president of strategic data analysis for the Recording Industry Association of America (RIAA). But that access to broadband also made a legal alternative like the iTunes Music Store possible.

When it launched, tracks on the iTunes Music Store came with FairPlay, Apple's DRM. You could listen to a song on up to five computers and burn a playlist ten times. That put some restrictions on users, but FairPlay didn't get in the way of listening to your music as much as other DRM schemes did, NPD's Crupnick says.

Still, some dispute what impact the iTunes Music Store really had on stopping piracy. In the first five years of the store's existence, piracy continued unabated. After all, Mulligan notes, not even iTunes could give pirates what they really wanted—unlimited music, wherever and whenever they wanted it, for free. Analysts think continued litigation by the RIAA and rights holders as well as the rise of free streaming options did more to stem piracy than Apple's music store.

In the Stream of Things

With the iTunes Store, Apple took the existing physical record store model and made it digital. And while the iTunes Store is still about ownership, it's a transition technology, Mulligan says.

Analysts agree that the future of music lies not in ownership but in access. Instead of having a copy of a song on your device, you'll stream it on demand when you want to hear it—à la Spotify, Rhapsody, and Rdio. Crupnick thinks that we're still five to ten years away from this becoming the standard, but it is coming.

What place do Apple and the iTunes Store have in this brave new world? Expect Apple to remain dominant in digital music for a long time to come—in large part because it makes the devices that people use to listen. iTunes is now entrenched in the way that many people think about music.

When downloads go the way of 8-track tapes, we should take a moment to appreciate the role that the iTunes Store played in freeing us to listen to music—not only when we want, but also where and how we want.

All Grown Up It started with music, but the store grew to include books, TV shows, and movies.

The Next Ten Years

As successful as the iTunes Store has been, is the model of the past ten years viable for the next ten? In my view, no. Two factors have altered the landscape: the changing attitudes of today's media consumers, and Apple's competition.

In the old days, you'd lay down $14 or so for a CD and feel it was worth it. Then the advent of illegal file-sharing services such as Napster and legit free streaming services like Pandora chipped away at that notion of value. As attitudes about music's worth change, the idea that the iTunes Store will remain rooted only in media sales and rentals seems quaint. So where does the company go from here?

Music subscriptions: Free music-streaming services are popular but face a hurdle in getting users to pony up for a subscription. If Apple embarked on streaming, it would enjoy key advantages: The iTunes Store already has its users' credit card info, lowering the barrier to entry; and iTunes and the store are familiar entities worldwide.

Video streaming: Interesting things are going on here. Netflix and Amazon are producing original programs for their streaming services. Apple has the means to deliver this kind of media, as it has demonstrated with its iTunes Festival concert series.

The world is changing. It will be exciting to see how Apple accommodates those changes in the coming years.—CHRISTOPHER BREEN

Ask the iTunes Guy

All about joining tracks when you rip CDs, iTunes Store device limits, apps as gifts, and more.

BY KIRK McELHEARN

Q&A Looking for the way to join tracks when you rip CDs with iTunes 11? Need to know how to get tracks into playlists quickly? What about iTunes Store device limits and gifting apps? All this and more in this month's column.

Q: I am unable to join CD tracks as I did in previous versions of iTunes. The menu command to join tracks is no longer in the Advanced menu. How can I do it?

A: The command has been moved from the Advanced menu to the Options button, near the top right of the iTunes window, which you see when you insert and click on a CD. If you click the Options button, you'll see the Join CD Tracks command.

Note that the command shows up only if you've selected tracks to join. Also, it works only if tracks on the CD are sorted by the leftmost column. In other words, when you insert a CD, don't change the sort order.

Q: Can I convert existing 720p videos in iTunes from a higher to a lower resolution? I don't really notice a difference in video quality, and my video library is getting pretty large.

A: I assume you're talking about videos that you've ripped or downloaded from the Web, not videos purchased from the iTunes Store. For any ripped videos, you can always convert them using an application such as HandBrake (go.macworld.com/handbrake), but you'll be more likely to notice video artifacts if you transcode your videos than, say, audio artifacts when you downsample

ILLUSTRATION BY MICHAEL SLACK

music files. If space is an issue, I suggest moving some of your videos to an external hard disk or a network disk. But if you still want to use a lower resolution, try converting a couple of videos with HandBrake, and, if the quality is good enough, use that.

Q: I am a musician and I use playlists as gig set lists and other ordered band-related playlists. When I get a new song, I like to add it to multiple playlists at once. It's a real pain to right-click and choose 'Add to Playlist' one at a time. Is there a way to select multiple playlists and add the song to all of them with one click?

A: No, but you can make this action a bit easier. Try using the iTunes sidebar, which displays your playlists no matter what you're viewing in your iTunes library. To show the sidebar, choose *View → Show Sidebar*, or press ⌘-<Option>-S. Find the track you want in your library, then drag it to a playlist; drag it to another; and so on.

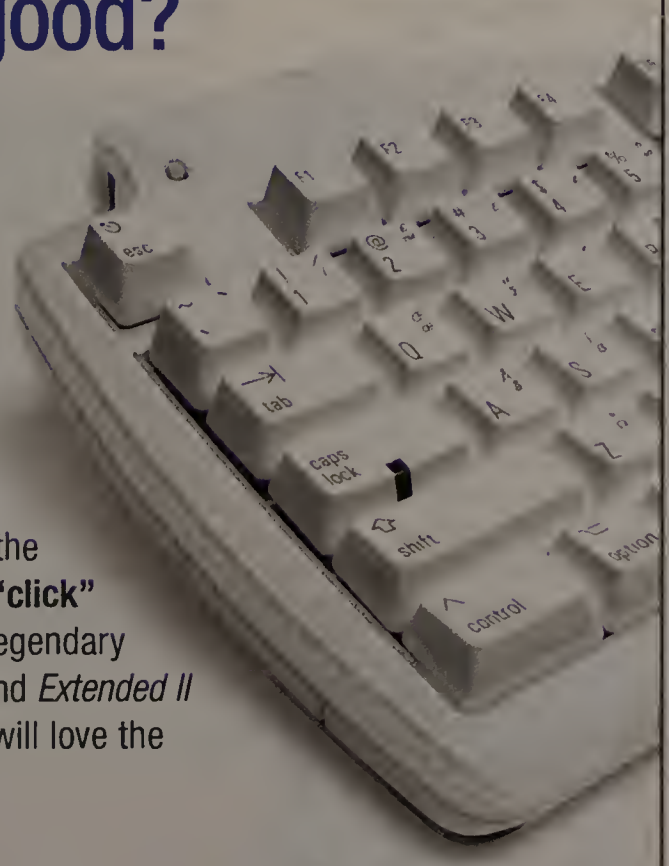
Join Tracks When tracks are sorted correctly, and when you've selected multiple, contiguous tracks, the Join CD Tracks command displays in the Options menu.

Q: Recently I ran into a wall regarding the five-machine limit on iTunes account authorizations. At home I've got a MacBook Pro that I travel with, a MacPro and an iMac, both of which are on my desk in my home office. I also have an iMac at work. And my wife has a Mac mini we'd like to use to share my Library. That's my five authorizations. Now I want to set up a media server on a Mac mini at home to stream content to several Apple TVs, and I can't authorize it to share my library. Do you know of any way to get more than five authorizations?

A: Unfortunately, that limit seems to be set in stone. And you're not alone; I have four computers authorized, and I know many people like you who are using all five of their authorizations. Apple really needs to address this issue if it wants to keep enticing people to set up digital hubs based on iTunes accounts. For now, I can only suggest that you deauthorize one of the two computers in your home office.

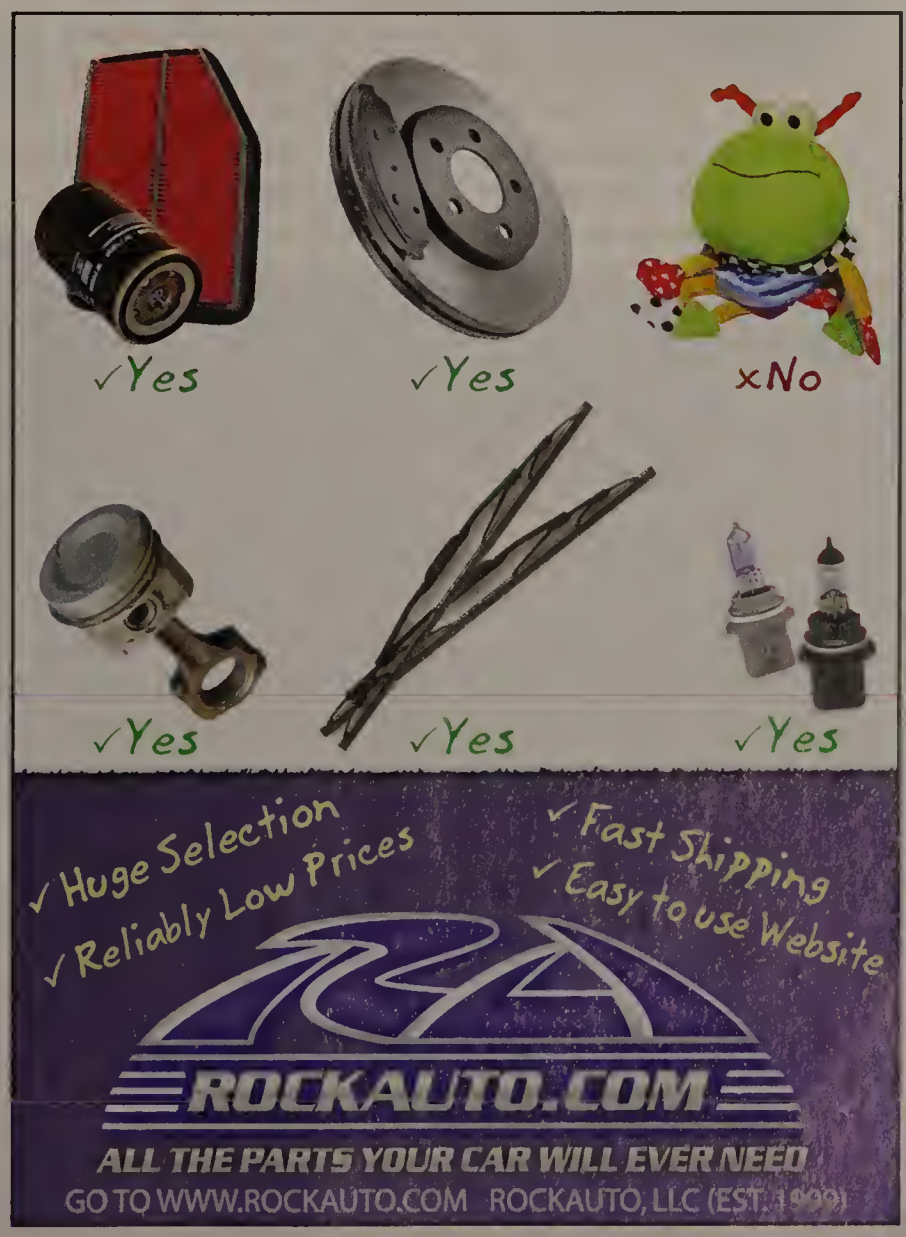
*Senior Contributor **Kirk McElhearn** (www.mcelhearn.com) is the author of* Take Control of iTunes 10: The FAQ, *second edition (TidBits Publishing, 2012). Have questions? Send them to itunesguy@macworld.com.*

Remember when typing
felt good?



Mac users who crave the **satisfying "click"** of Apple's legendary *Extended* and *Extended II* keyboards will love the Tactile Pro.

tactilepro www.matias.ca



ROUNDUP: Four Bluetooth Speakers That Fit in Your Bag

BY JASMINE FRANCE

When you want to share tunes on your portable device with friends, a speaker is the way to go. And a compact model that connects via Bluetooth lets you listen on the go, without the hassle of wires. I looked at four similarly priced models with lightweight, bag-friendly designs. I compared the four to the $180 Jawbone Jambox and the $200 Jabra Solemate, two popular speakers with similar features, footprint, and sound quality.

Beats Pill

Winning points for design, the Beats Pill measures 7.5 by 1.8 inches and weighs about 11 ounces. The volume buttons are frontside, and the back has a power button, a USB port, an auxiliary-input jack, and a Bluetooth indicator. It comes with a USB cable, an AC adapter, and an auxiliary cable. You can use the unit as a speakerphone. The rechargeable battery is rated for 7 hours of playback—the shortest time in the test group.

The Pill's crisp sound is a bit cleaner and more open than the Jambox's, though its bass is less deep. It matches the Solemate in volume but also in distortion at high volume.

Braven 650

At 6.2 by 2.5 by 1.8 inches, the Braven 650 is plenty compact, but at 16 ounces, it's the heaviest unit I tested.

You get two USB ports, a pairing/call button, a power switch, and Bluetooth and battery indicator lights. It comes with a USB cable, an AC adapter, and an auxiliary cable. A built-in mic lets you use the 650 as a speakerphone. You can also charge small USB devices with it. The 650 has an estimated battery life of 20 hours.

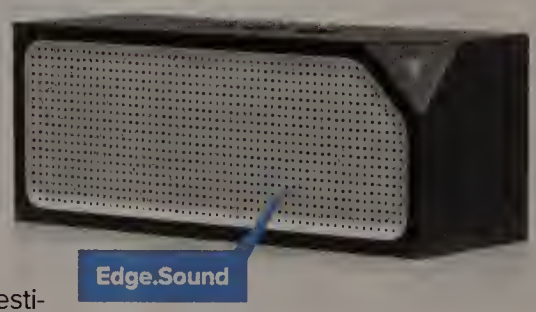
The 650 offers the most open and encompassing sound in the test group (including the Jambox and Solemate). Audio sounds great at all levels, with clear highs, warm midrange, and solid bass for the size.

CubEdge Edge.Sound

CubEdge's speaker has an "edgy" design detail: a sliced-off top right corner.

At 5.9 by 2.4 by 2.1 inches, the Edge.Sound is the narrowest of the group. It has pairing/call and volume buttons, a power switch, an aux-in jack, a USB port, and a Bluetooth indicator light. It comes with a USB cable, an AC adapter, and a line-in cable. Battery life is rated at 10 hours.

The Edge.Sound is about as loud as the Braven 650 but gets muffled and distorted at higher volume levels. At lower volumes, audio is clear and crisp, though bass is lacking. Midrange frequencies also lack the buttery warmth I crave. This speaker's sound quality was my least favorite of the models I tested.



Definitive Technology Sound Cylinder

The Sound Cylinder measures 7.5 by 1.9 inches and weighs 12 ounces—similar to the Pill. Two distinguishing features are a built-in device clamp and a kickstand, for use with a tablet.

Unfortunately, the Sound Cylinder doesn't include a built-in mic, so it can't function as a speakerphone. However, it does have an auxiliary line-in jack for wired audio, and it's rated for a reasonable 10 hours of audio playback.

Audio sounds crisp rather than warm, and audio playback is very clear at all volumes. However, the bass is weak.

Bottom Line

The Braven 650 has the best audio of the bunch, hands down. And its integrated mic, device-charging capability, and battery life seal the deal.

Bluetooth Speakers At-A-Glance

PRODUCT	RATING	PRICE	URL
Beats Pill Beats	♦♦♦♦	$200	beatsbydre.com
Braven 650 Braven	♦♦♦♦½	$190	braven.com
Edge.Sound CubEdge	♦♦½	$150	cubedge.com
Sound Cylinder Definitive Technology	♦♦♦♦	$200	definitivetech.com

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VIDEO GAMES MOVIES
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EVERY NEW ART FORM HAS ITS FIGHT FOR FREE SPEECH.

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VIDEOGAMEVOTERS.ORG

Reviews

Home Entertainment Hardware, Software, and Accessories

Hardware

Bowers & Wilkins Z2

●●●●½; $400; Bowers & Wilkins; www.bowers-wilkins.com

Bowers & Wilkins's $400 Z2 speaker lets you wirelessly stream audio via AirPlay from the latest iPhone, iPod touch, and iPod nano models. Measuring 7.1 by 12.6 by 3.9 inches, and weighing 5.7 pounds, the speaker has a distinctive look.

In front of its Lightning dock sit two touch-sensitive volume buttons. On the back are an ethernet port, a reset button, and an auxiliary-input jack (for a wired audio source).

My iPhone 5 connected to the Z2's Lightning dock easily and securely. Getting the Z2 onto my network took a bit of work but wasn't too painful.

The included remote sports the usual playback buttons, along with an input-selection button you'll need to switch between AirPlay, the Lightning dock, and the auxiliary input.

As I streamed music from my iPhone 5 and various other sources, the sound was great—extremely clear, with a fine bass presence, given the Z2's compact size. I haven't tested a better AirPlay speaker for this price.—LEX FRIEDMAN

Brookstone Big Blue Media Tower

●●●; $300; Brookstone; www.brookstone.com

The Big Blue Media Tower speaker bar is meant to be both a music speaker and a TV/media audio hub. However, its 38-inch tower design makes it unsuitable for positioning in front of a TV; and if you place it to the side, the audio will be off center. Also, it lacks a remote for controlling volume and source selection. As just a standard, single-box music speaker, it offers pretty good sound. But in that context, there are much better values to be found.—LEX FRIEDMAN

House of Marley Chant

●●●; $110; House of Marley; go.macworld.com/chant

House of Marley's $100 Chant Bluetooth Portable Speaker is a Bluetooth speaker that you can carry inside its custom canvas case. You can use the Chant without removing it from its case simply by unzipping the top; that exposes the speaker grill, with cutouts near the base of the case that expose the speaker's ports and buttons.

It measures 3.4 by 4 inches and weighs less than a pound. You can charge the speaker via its Mini-USB port using the included Mini-USB cable, but you'll need to provide your own USB charger. Marley says that a fully charged Chant provides six hours of listening.

How does the Chant sound? Good given its size, but not great compared to other speakers at this price. For $100, I want more audio performance than the Chant can offer.—LEX FRIEDMAN

Plair

●●½; $99; Plair Media; plair.com

Set-top boxes like the Roku 3 give you access to hundreds of channels of streaming Web content, but the Plair is going after less tech-savvy types than the typical set-top box user. Unfortunately, the Plair isn't quite ready for its close-up.

To get started, I plugged the Plair into an HDMI port and connected the power plug to an outlet, though the odd shape of the device made it hard to plug in to one of my HDMI ports. From there, the setup process was riddled with bugs.

The Plair is an interesting concept, but it's not ready for prime time. When it worked, the results were quite good, but in my experience, it was pretty much hit or miss. Most people would do better to spend their money on an Apple TV or a Roku 3.—JONATHAN SEFF

iPods: Current Lineup

PRODUCT	SPECS	RATING	PRICE[1]	DISPLAY	MORE INFO
iPod Classic	160GB	●●●●	$249	2.5-inch color	go.macworld.com/classic2
iPod Touch 4th Generation	16GB	n/a	$199	3.5-inch color (Retina)	go.macworld.com/touch4
	32GB	●●●●½	$249	3.5-inch color (Retina)	go.macworld.com/touch4
iPod Touch 5th Generation	32GB	●●●●½	$299	4-inch color (Retina)	go.macworld.com/touch5
	64GB	●●●●½	$399	4-inch color (Retina)	go.macworld.com/touch5
iPod Nano	16GB	●●●●	$149	2.5-inch color	go.macworld.com/nano7
iPod Shuffle	2GB	●●●●	$49	None	go.macworld.com/shuffle4

n/a = Not available [1]All prices are Apple's prices

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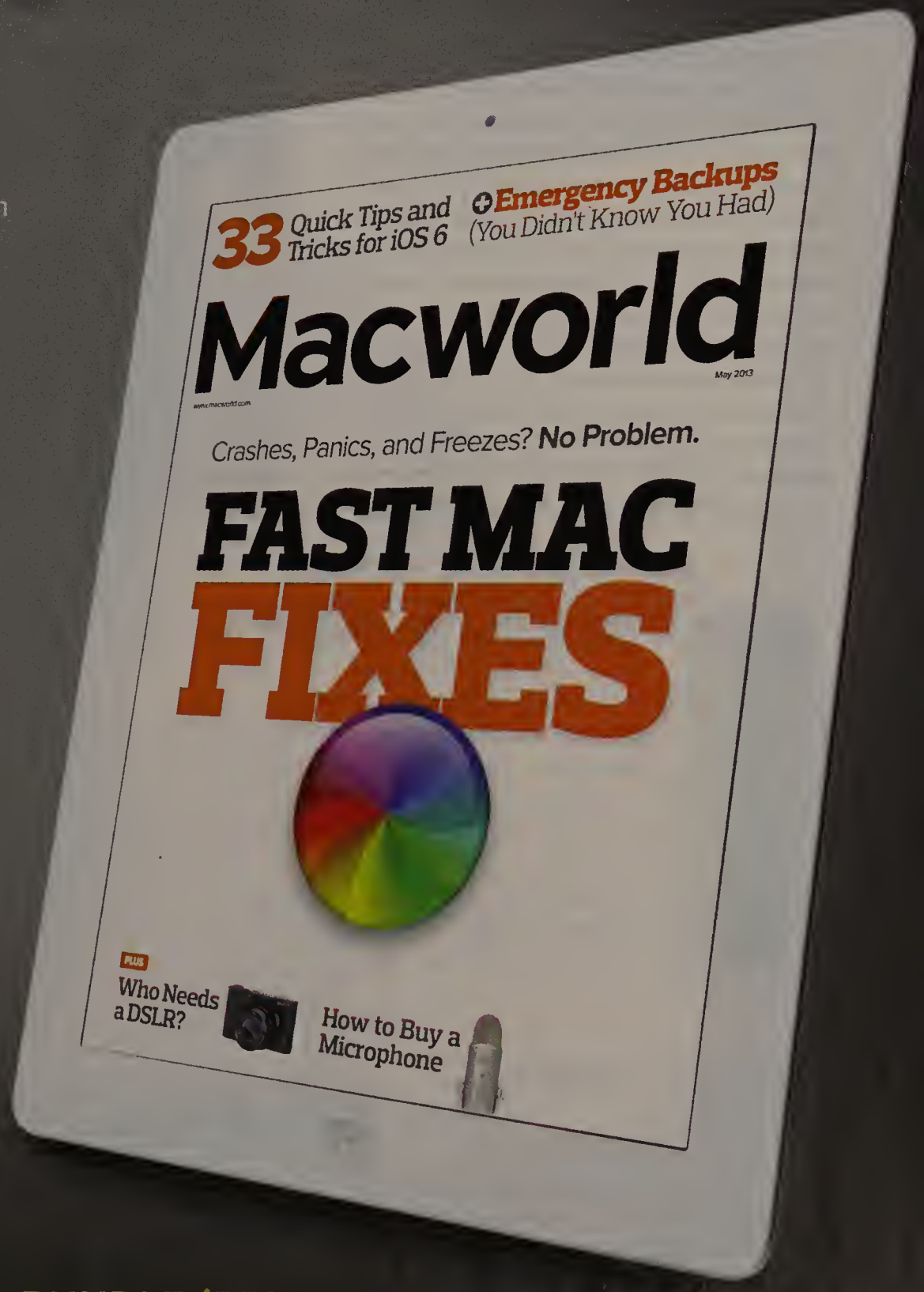

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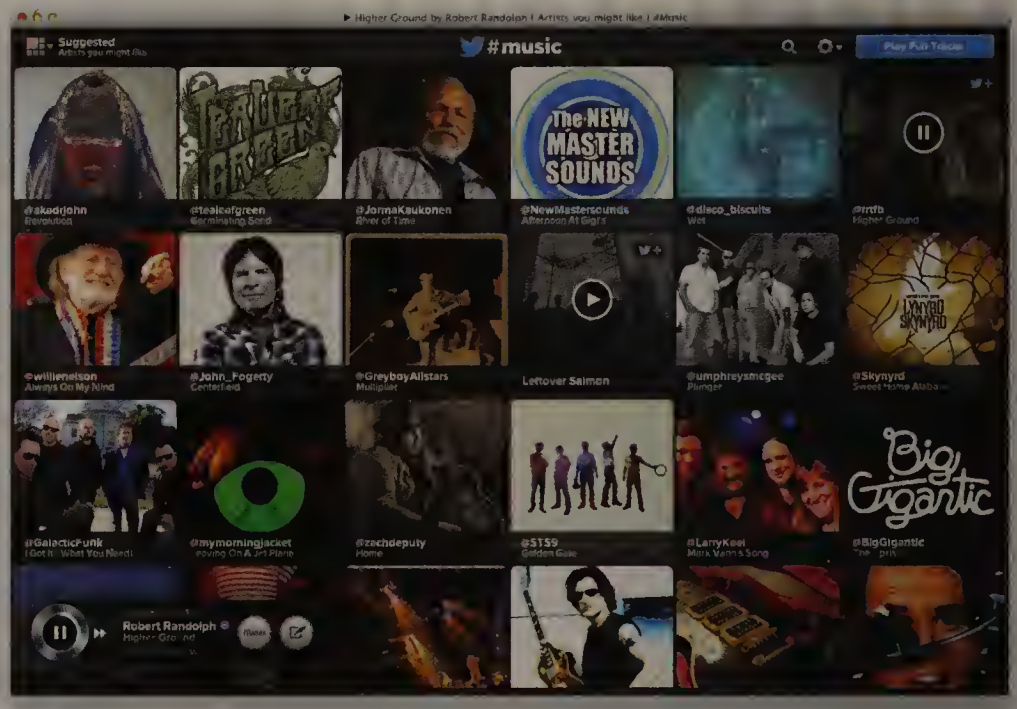
Hot Stuff

What We're Raving About This Month

Twitter Music Service

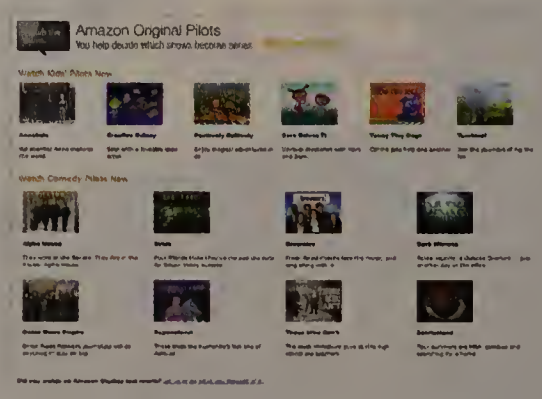


After getting heaps of hype from the likes of Ryan Seacrest and Jason Mraz, Twitter Music has finally launched for the rest of us, as both an iPhone app and a website. Unlike other services, Twitter Music is aimed at music discovery rather than lengthy listening sessions. The app's main attractions are a Popular list of artists based on what's trending on the social network, and an Emerging list for indie music. Each section shows a grid of artists, letting you play a single song from each one, or see which artists those musicians are following. Though the service plays only previews of songs, Spotify and Rdio subscribers can log in to their accounts to listen to full tracks that are available in the catalogs (music.twitter.com).—JARED NEWMAN

Scosche BoomBottle

The $150 BoomBottle from Scosche is a clever, rugged Bluetooth speaker that fits neatly inside of the water-bottle cage on your bike, letting you listen to your tunes while on the go. It features omni-directional sound from two 40mm drivers and a passive subwoofer to send music all over, and it has integrated controls for playback and volume. It even includes a built-in microphone to double as a speakerphone, and offers up to 10 hours of playback between charges. And it comes in your choice of bright, splashy color (www.scosche.com).—JOEL MATHIS

Amazon Original TV Shows



Amazon and Netflix are dialing up efforts to stand out as more than just streaming services. Netflix had already released *House of Cards* earlier in the year, and now Amazon has entered the fray with 14 pilot episodes via its Amazon Studios content arm. After watching any of the six kids shows and eight comedies—you can do so on your computer or iOS device—viewers are urged to vote on the show, using Amazon's five-star rating system. Shows with the best ratings may be turned into full-blown series. The only downside is that you need to be an Amazon Prime Instant Video or LoveFilm subscriber to view them (www.amazon.com).—JOHN P. MELLO JR.

Logic3 Scuderia FS1 Air

The $649 Scuderia FS1 Air is an AirPlay-enabled speaker system designed to stream high-quality audio wirelessly from your computer or iOS device. It features dual two-inch drivers and a passive bass radiator, plus patented amplifier technology and an integrated digital signal processor. The FS1 Air also works with Bluetooth devices, and rounds out its support with a 3.5mm auxiliary input. And don't forget the Ferrari logo. It comes with a matching remote, and includes a 30-pin dock, letting you charge your device while you play tunes (www.ferrari-by-logic3.com).—JOEL MATHIS

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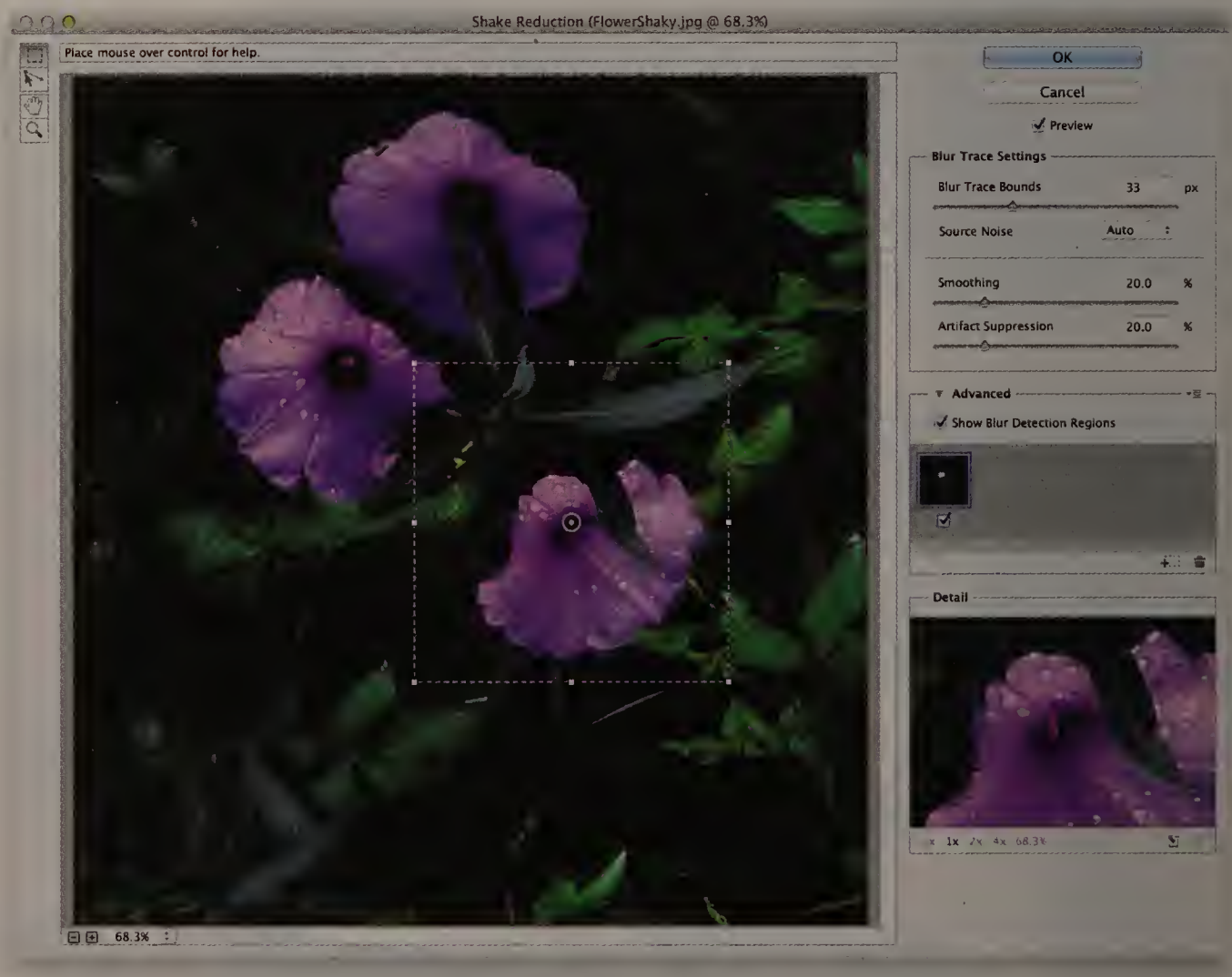
Adobe Scraps Creative Suite Software Licenses in Favor of Cloud Subscriptions

BY JACKIE DOVE



Shake It Up (Not) Photoshop CC's Camera Shake Reduction feature deblurs images that would have otherwise been unusable because of camera movement.

Adobe's sweeping changes to its lineup of Creative Suite professional software, which include scrapping Creative Suite traditional licenses in favor of its Creative Cloud subscription plan, was no surprise to anyone. The signs were all there when Creative Cloud launched alongside Creative Suite last year. The transition was already in play, and it comes on the heels of Adobe's recent announcement that it would cease selling shrinkwrapped boxes of its creative apps.

"This is the decision of our company—to focus on Creative Cloud—and it is huge," says Scott Morris, Adobe's senior marketing director. "It's an even bigger decision than when we moved to Creative Suite years ago."

And it is controversial, something not lost on Adobe. The company expects pushback from customers and is prepared to deal with the fallout. "In the same way [as with Creative Suite], there will be customers who have a hard time with it at first. But today our customers are on Creative Suite—they got over it; they saw the benefit of it; and that's exactly the type of transition we're going through," says Morris. Adobe sees the response to its Creative Cloud strategy as more than respectable so far, having gained over half a million paid members, and over 2 million total members, since CC launched in April 2012.

Ten Suite Years

A decade after Adobe corralled its disparate creative apps into a cohesive, interoperable suite, the company's 15 professional creative applications—for photographers, graphic and Web designers, and video and motion graphic artists—were renamed to reflect the cloud functionality. From now on, applications like Photoshop, Illustrator, InDesign, Premiere Pro, and others are called CC

for Creative Cloud, rather than CS for Creative Suite.

It's unclear whether or not Adobe will institute a numbered versioning system for the CC line. Appointing numerical versions to apps that are constantly updating may seem counterintuitive, but Adobe has not stated its intentions on the subject.

Easy to Find Premiere Pro's new Link & Locate feature helps you manage media quickly by locating clips regardless of where they've been moved over time.

Software Plus

The impetus behind Creative Cloud, and perhaps the bright line between pro-

From now on, applications like Photoshop, Illustrator, InDesign, Premiere Pro, and others are called CC for Creative Cloud, rather than CS for Creative Suite.

sumer and professional users, is that Creative Cloud is not simply software. Adobe has positioned Creative Cloud as a cross-platform, multidevice hub for creative users by offering an assortment of goods and services to assist with a networked and collaborative artistic workflow. Adobe has built Creative Cloud as a platform to communicate, collaborate, consult, and train. A subscription gives you 20GB of cloud storage. Signature features like Sync Fonts, Sync Colors, and Sync Settings let you sync and customize your software environment and gather the tools you need while you work, with everything centralized and within easy reach. For individuals and small shops, the subscription price is $50 per month; for large workgroups, the price is $70 per seat per month, though there are numerous discounts.

Creative Cloud lets you work cross-platform and on a range of smart devices to store, sync, and share files and access Behance, the integrated online community that Adobe purchased last year. Behance lets users exhibit work, get feedback, and generate artistic exposure. With Creative Cloud, Adobe seeks to tame chaotic creative workflows and direct communication conduits away from email and Dropbox toward Behance. The new lineup also includes some subscription-only desktop apps, such as Muse, plus some companion mobile apps, such as an updated Kuler color utility, now available for iOS.

While Adobe will quit selling perpetual licenses to new creative suite software packages, it will continue to support Creative Suite 6 for compatibility through the next major upgrades of both Mac and Windows operating systems. Adobe will also continue to make CS6 available via perpetual software license for an unspecified time, and will provide bug fixes and security updates as necessary. All CS6 suites and individual products continue to be available via download, and volume licensing is also available through Adobe authorized resellers. However, there will be no further feature development for that version. "We have no plans at this time to update CS6, but for folks who are not ready to give up their perpetual licenses, CS6 and all of its component apps will continue to be available just as they are today," Morris said.

Pros vs. Hobbyists

Adobe has calculated that Creative Cloud's target audience of professional customers, who use the software for their livelihood, will need to use more than just a single application in order to meet the demands of projects in the commercial marketplace: They will need to learn new skills to meet client needs. However, there are also many single-app users of software like Photoshop, and for them, a subscription to the software is available for $10 a month for the first year and $20 per month after that.

Lightroom, while part of Creative Cloud, is the only app in the suite that still carries a traditional license. Adobe makes a

distinction between professionals who use software for their livelihood and enthusiasts who use it for fun. "Lightroom is tricky because it falls in between," says Morris. "Lots of consumers use Lightroom, but it's also used by pro photographers. So we're treating it both ways."

Service Model

Software as a service is prevalent in the business arena but not in the creative space, so Adobe is a pioneer of sorts, in that it is the first company in the creative arena to go the all-cloud route—compared with peers like Autodesk, Microsoft, and Quark. "Adobe is the sole company that says this is going to be the focus for our traditional desktop tools, and is going full-on cloud," Morris says.

Adobe is ready to accommodate customers who may want to use the cloud services but are prohibited for various reasons—mainly government, educational, and enterprise customers who have security or workflow issues.

For other customers, as long as you subscribe, you get all the available software and networked services, with automatic updates and fixes. This new world is different and can be intimidating, but from Adobe's perspective, it's here to stay.

Software Update

As expected, the Creative Cloud desktop apps all offer a slate of upgrades. Here are some of the highlights.

Photoshop Creative Cloud features new sharpening technology and workflow enhancements. The Camera Shake Reduction feature deblurs images ruined by camera movement, while Intelligent Upsampling helps artists enlarge low-resolution images. Camera Raw 8 lets you apply edits the same way you would apply a filter to any layer or file inside Photoshop, and then lets you enhance them. Editable rounded rectangles, multishape and path selection, conditional actions, and improved 3D painting are all new features for the CC version. Photoshop Extended, the more-expensive Photoshop package that included 3D capability and sophisticated image analysis tools, has now been merged into Photoshop CC.

Both InDesign and Illustrator get a series of upgrades, including support for Mac Retina displays. The Touch Type tool in Illustrator CC lets you use a mouse, stylus, or multi-touch device to move, scale, and rotate editable text. The Images in Brushes feature lets you paint with a brush made from a photo; this is because Art, Pattern, and Scatter brushes can contain raster images, letting you paint with brush strokes that you can reshape and modify. InDesign and Illustrator CC also acquire the same dark interface that's found in the rest of the apps in the CC suite.

> Adobe is a pioneer of sorts in that it's the first in the creative arena to go the all-cloud route—compared with peers like Autodesk, Microsoft, and Quark.

Premiere Pro CC's Editing Finesse tool provides a redesigned timeline, track targeting, dupe-detection markers, through-edit indicators, and more. It integrates color workflows with the Lumetri Deep Color Engine to apply rich color-grading looks. Perhaps the most exciting new feature of Adobe's motion graphics application is the Live 3D Pipeline between After Effects CC and Cinema 4D. You can now insert 3D objects directly into After Effects compositions via the new Live 3D Pipeline with Maxon Cinema 4D Lite, which is included with the program.

With Dreamweaver CC, Adobe has introduced CSS Designer, a visual editing tool that generates standards-based Web code, letting you apply CSS properties such as gradients and box shadows. The Enhanced Fluid Grid Layout feature facilitates the visual construction of Web designs and responsive layouts for projects viewed on different screen sizes. For mobile, full visual support for jQuery UI widgets enhances the workflow, while PhoneGap Build support lets you package native apps for iOS and Android.

Now 64-bit, Flash Professional is the newest creative app to switch to the dark interface. It is more modular, with a more responsive timeline that lets you manage multiple large files. The new version also lets you export content in full high-definition video and audio.

Touch Type
Using Illustrator CC's Touch Type tool, you can move, scale, and rotate characters.

Typography for All: Text for High-Impact Messages

BY LESA SNIDER

Text is incredibly powerful—whether you're making a business card or a garage-sale sign, you're sending a message. The look of that message directly influences the way the receiver reacts. Here we'll cover the basics of everyday typography, font pairings that work, formatting tips, and common mistakes to avoid.

Basics of Typography

First, let's get a grasp on the lingo. *Point size* refers to the size of the text. The *baseline* is the imaginary line on which text sits. The *x-height* is the size of the main body of a character, excluding any *ascenders* (bits that extend above the x-height, such as in *f* or *h*) or *descenders* (bits that extend below the baseline, such as in *g* or *y*).

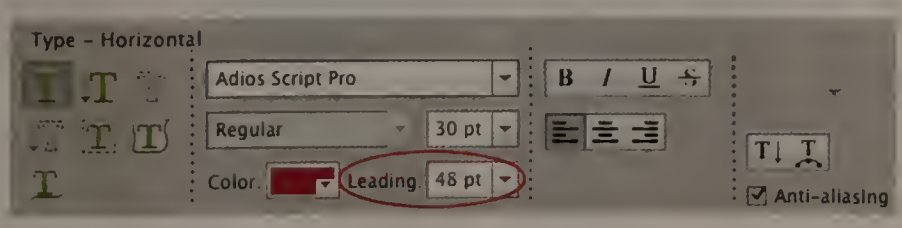
Font family refers to the character design, and *font style* refers to variations of that design, such as regular, bold, italic, and so on. Fonts also come in many different categories such as *serif* fonts (including Times and Hoefler), which have lines extending from the main stroke of each character that resemble tiny feet; *sans serif* fonts (such as Arial and Helvetica) don't have feet. Other categories include *slab serif* (same as serif but thicker), *decorative* and *display* fonts, and *scripts*.

Tracking refers to uniform spacing between letters. Adjusting the tracking helps you fit text in a small area. In Apple Pages and Keynote, tracking is called character spacing. *Leading* controls spacing between lines of text. In Pages and Keynote, leading is called line spacing. You can adjust leading in Photoshop Elements, too.

Font Pairings That Work

Although you're always safe in pairing different font styles within the same font family (say, Hoefler Bold for headlines with Hoefler Regular for paragraphs), it's also nice to pair a serif with a sans serif. Try Gill Sans with American Typewriter, or Arial Narrow Bold with Baskerville. If you're trying to pick a font to use for the Web or your email program, Verdana is great because its larger x-height makes it easier to read. If you have Adobe software, you have an array of fonts on your Mac. Try Helvetica with Garamond, Frutiger Bold with Minion, or Garamond Bold with Futura.

If you are trying to pick a font to use for the Web or your email program, Verdana is great because its larger x-height makes it easier to read.



Space It Out Use leading to control the spacing between lines of text in a document.

Typographic Offenses

To make sure your text is sending the right message, avoid these common mistakes.

Typing a double-space after each period: This blunder comes from the days when people used typewriters with monospaced fonts. Since any font you're likely to have nowadays uses proportional spacing, you have no reason to use two spaces.

Underlining text that isn't a hyperlink: Underlined text signals to the reader that it's a Web link, so use bold or italic.

Using all capital letters: The offense is that it implies screaming.

Incorrect ellipses: An ellipsis indicates an omission or interruption...in thought. It consists of exactly three periods, with or without a space before and after them.

While today's digital tools make the process of creating text much easier, the guidelines above will help you ensure that your text always communicates effectively and professionally.

Can Your Smartphone Really Replace Your Point-and-Shoot Camera?

BY JAMES GALBRAITH

When I see something that I'd like to capture and save for posterity, or share with friends and family, I reach into my pocket for my ever-present iPhone. I don't leave my desk, much less my house, without my iPhone, but the days of habitually grabbing my stand-alone camera before going on an outing are over.

For me, it's all about convenience. With my keys, wallet, and phone already filling my pockets, I don't have room for yet another device, and I'm not one to carry along a bag.

But, what, if anything, do I have to give up in image quality for the convenience of leaving my camera at home? Do the photos that a dedicated point-and-shoot camera captures justify the hassle of packing yet another device?

Smartphone photography has come a long way since the original iPhone came out with its 2-megapixel camera. But to find out how phones today compare with a popular point-and-shoot camera, I gathered four smartphones—an Apple iPhone 5, a BlackBerry Z10, an HTC Droid DNA Android phone, and a Nokia Lumia 920 Windows Phone 8—and a Canon PowerShot Elph 520 HS, and started snapping.

Hardware

Each of the smartphones I used has an 8-megapixel camera, while the Canon is a 10-megapixel camera.

One of the biggest advantages of the Canon PowerShot Elph is its 12X optical zoom. Though the smartphone cameras let you zoom in, they do so digitally, which actually decreases the resolution of the image as you make it larger. Also, while each of the smartphones has a fixed aperture (f/2 for the Lumia 920 and the Droid DNA, f/2.2 for the BlackBerry Z10, and f/2.4 for the iPhone), the Canon has a range of f/3.4 to f/5.6. Because its aperture, shutter speed, and ISO are adjustable, the Canon also has more tools for automatically evaluating a scene and selecting the best settings to capture it.

Controls

Of the four cameras I tested, the iPhone 5 has the fewest user settings (third-party apps permit more settings, but for this comparison, I used only the cameras' native apps). You can enable the flash, disable it, or let the iPhone decide when to use it. You can turn on a grid setting to help compose a scene, turn on High Dynamic Range, or capture a panoramic photo—and that's about it.

The BlackBerry Z10 offers a few more settings, with four scene modes: action, whiteboard, night, and beach or snow.

The Nokia Windows 8 phone has lots of settings to mess around with. It gives you five scene modes, and it lets you manually select the ISO up to 800, change the exposure value up or down, and select the white balance from a list of five presets (automatic, cloudy, daylight, fluorescent, and incandescent).

TONY LEUNG AND JEFF SANDSTOE ASSISTED WITH PHOTOGRAPHY FOR THIS STORY GALLERY IMAGE COMPOSITE BY ROBERT CARDIN

The Droid DNA doesn't have any scene modes, but it does have a self-timer and a continuous-shooting mode; and it lets you select ISO, white balance, exposure, contrast, saturation, and sharpness settings.

All of the phones lag far behind the Canon Elph in settings. The point-and-shoot camera boasts red-eye detection, ISO settings up to 3200, white balance options, and scene modes that include snow, fireworks, portrait, skin smoothing, smile detection, and blink detection.

No Clear Winner This image of sailboats taken by the Canon point-and-shoot camera is not very different from those taken by the smartphones.

Image Quality

To test the cameras, I set them all to auto mode at their highest-quality settings and took an array of shots—dimly-lit indoor shots and backlit daylight shots of our intern, close-ups of flowers, a couple of landscape pictures, and more.

In the indoor-flash shot, all of the cameras except the Canon Elph gave our intern a nasty case of red eye. Images from the Droid DNA and the BlackBerry Z10 had a slightly greenish cast, while those from the Lumia 920 were just a touch pink. The Canon Elph images looked a little soft overall, but its portrait was the best, by far.

Even with the flash turned off, the Canon Elph still beat the rest. It automatically selected 1600 ISO, but didn't suffer from nearly as much noise as the iPhone 5, which chose the same ISO setting. On the other hand, the higher ISO helped the iPhone produce a brighter picture than the BlackBerry Z10 and the Droid DNA did: Their images were dark. The Lumia 920's photo was brighter than those two images, but looked distinctly green.

I also took a backlit picture of our intern outside with the flash on. The Canon Elph again produced the best shot. The Droid DNA had trouble capturing the subtle color gradations in the sky, going from white to aqua to blue, while the others handled the change from very light to darker blue more smoothly. But none of the phone cameras did a great job of lighting his face.

In the close-up picture of some daisies, the Lumia 920 and the Droid DNA blew out the whites in the petals, losing some detail there. But all the cameras did a good job of capturing the detail in the center disc of the flower.

A scene of sailboats docked on San Francisco Bay showed some differences, but there were no clear winners. The Lumia 920's image was overly blue, very saturated, and a little too contrasty—as though someone had applied an Instagram filter to it. The images captured by the Droid DNA and the iPhone 5 were warmer yet sharp, though the Droid's picture lost some detail in the highlights.

In pictures taken near the San Francisco Bay Bridge, the BlackBerry Z10's effort was again a little too blue, while the Droid DNA's seemed slightly underexposed and the iPhone 5's a little overexposed. The Lumia 920 had the most trouble with this shot. The structure of the bridge showed some jaggies and the people and buildings in the frame had a strange watercolor look.

Smart Landscapes This image is taken by the iPhone 5's camera, which did a good job of capturing landscapes.

Camera or Smartphone?

All the smartphones held their own against the point-and-shoot camera in my photos of flowers and landscapes, producing no clear winners. For taking pictures of people, however, the Canon PowerShot Elph 520 HS was unquestionably the most capable candidate. If I were going to an event, especially indoors where I'd be taking pictures of people in less-than-ideal lighting situations, I would definitely prefer a dedicated point-and-shoot camera over any of the four smartphones I looked at.

However, for casual shots outdoors that are destined for sharing online, where image sizes are small enough to render minor image flaws unnoticeable, the smartphone camera's picture quality should be perfectly acceptable.

Eliminate Red-Eye in Your Photos

BY DAVE JOHNSON

A Glaring Problem The dreaded red-eye effect usually appears when you take low-light photos while using a flash.

Based on a casual survey of photos posted on Facebook and Flickr, it wouldn't be crazy to assume that the demon population has skyrocketed: Red eyes are everywhere. The dreaded red-eye effect, of course, owes its existence to a far more mundane phenomenon than occult forces of evil. Red eyes usually pop up in photos taken in low light, an ambient condition in which people's eyes naturally dilate to let in as much light as possible. But when the pupil is wide open, the eye's retina is fully exposed to the camera lens; and when your camera flash-fires, the light bounces off the retina and appears in your photo as the creepy dot of red so familiar from snapshots and horror movies.

The good news? Understanding what causes the problem puts you in a position to eliminate it from your photos. Here are some recommendations to help you capture photos that are free of red-eye.

Shoot in a well-lit room: The easiest way to avoid red-eye is to avoid having your subjects' pupils dilate to begin with—and that means not taking pictures in dimly lit environments. Try instead to shoot in a well-illuminated location. Move your subject near a window, turn on lights, or shoot outdoors. Of course, this advice won't help if it's night, or if you're shooting in a place where you have no control over the lighting. No worries—you can still conquer red-eye by using the following strategies.

> The easiest way to avoid red-eye is to avoid having your subjects' pupils dilate to begin with—and that means not taking photos in dimly lit environments.

Use your camera's red eye mode: Most digital cameras come equipped with a handy mode for reducing red-eye. Check your flash's settings; you should be able to cycle through modes such as fill flash, slow shutter, and red-eye. When you use red-eye mode, the flash will "prefire" several times, before taking the actual photo. This is to cause your subject's pupils to contract, thus reducing the intensity of the red-eye effect. How well does it work? It depends on the setting—how dark the location is—and on your subject. Not everyone's eyes respond quickly to changes in light. But generally, it produces good (though not perfect) results.

Bounce the flash or take it off the camera: This isn't a viable option with point-and-shoot cameras; and indeed, one reason that serious photographers step up to a digital SLR is to gain the ability to move the flash. If your camera has an external flash, you can angle it so that the light bounces off the ceiling for indoor photos.

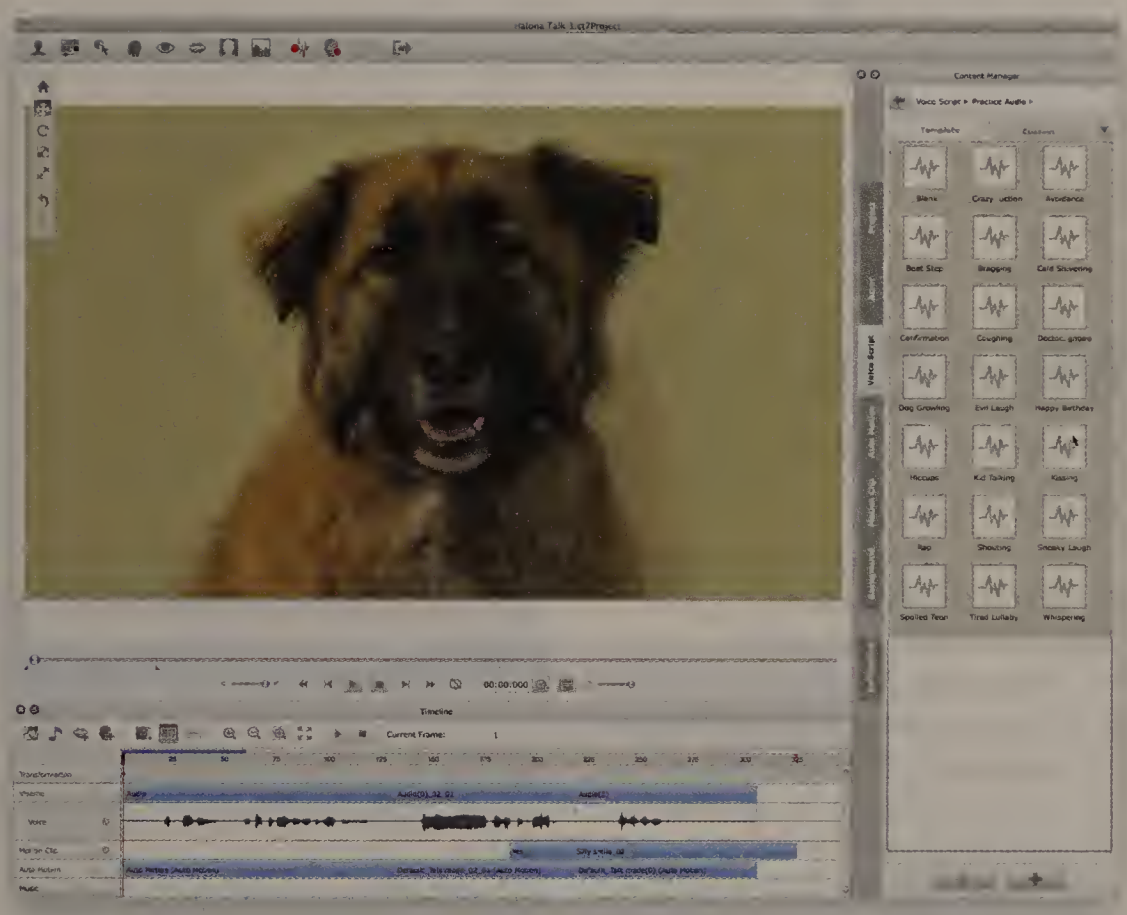
Why does this work? Remember that red-eye occurs because the flash reflects off your subject's eyes and back into the camera lens. But if the light from the flash doesn't travel directly along the axis of the lens, it won't bounce back along the same path. Similarly, if you can remove the flash from the camera's hot-shoe and hold it off to the side, you'll avoid directly reflecting light into the camera lens, and thus defeat the red-eye effect.

Fix it on your computer: Your last line of defense is to edit out the red-eye effect by using a photo-editing program. Pretty much every photo editor has a tool to remove red-eye; you simply select the tool and click the affected eyes.

Most such tools fiddle with the colors and exposure in the eye to mask the red. The result isn't perfect and it works most effectively if the eyes are relatively small in the photo. But if you've taken an otherwise lovely portrait that's haunted by glaring red eyes, resorting to a red-eye removal tool is certainly better than doing nothing.

CrazyTalk7 Arrives on the Mac With Advanced Features

BY JEFF FOSTER



Review

RATING

PRICE
$150 (Pro)

COMPANY
Reallusion

URL
reallusion.com

Reallusion's CrazyTalk7 Pro is a powerful image-morphing and character-animation program with an easy-to-use interface that's fun and rewarding for both hobbyists and professionals. Select any photo or illustration as your subject, and with just a few clicks you can bring it to life by making it move and talk. You can use prerecorded voice scripts and animation settings, import recorded audio clips, or record your own audio right in the software.

CrazyTalk7, which has come to the Mac after being a Windows-only program, is available in two versions: Standard and Pro. Standard is the only version available in the Mac App Store. The Pro version is available via Reallusion's website.

Mostly Intuitive Workflow

Getting started is simple, and CrazyTalk7 Pro guides you step-by-step in setting up your image for character animation. You can use one of the many preconfigured characters provided and add your own voice to animate them, or start with your own illustration or photo.

Simply select an image to import, and CrazyTalk7 Pro will guess where the outside edges of the eyes and corners of the mouth are on your subject's face. The next step requires you to refine the range of facial characteristics; the program gives you two levels of detail for adjusting the motion points around the mouth, eyes, eyebrows, nose, and outer head range. Next, you determine the three-dimensional shape of the character's face, selecting from the preset grids and positioning them over the center of the face. Now you are ready to add voice, script, and motion.

Recording your voice directly in the app automatically generates voice-recognition characteristics and applies them to your model. You can trim and edit the individual audio clips on the timeline via simple controls. However, as a Mac-based professional video editor and animator, I found some of the controls to be somewhat counterintuitive to a standard nonlinear editing environment. For example, shortcut keys are based on the original Windows version, which makes it necessary to manually click tools and menu items, right-click a mouse to access pop-up menus, and use an extended keyboard.

> Select any photo or illustration as your subject, and with just a few clicks, you can bring it to life by making it move and talk.

Customizing Your Character

You can replace your character's eyes, mouth, and teeth with animated options from the built-in library. The Pro version also offers advanced Auto Motion controls to enhance facial expressions and movements of the head and body.

I was, however, disappointed that it didn't have more options for recording audio quality and line levels. Reallusion suggests recording your voice track with a pro audio application and then importing the track into CrazyTalk7 Pro to apply to your character animations for best results.

Video-export capabilities include the option to adjust scale and quality, depending on the QuickTime codec you select. You can also buy additional content such as the Starter Kit with more animation presets.

Bottom Line

CrazyTalk7 Pro is a powerful character animation tool that's fun to use and has practical application for professional producers seeking a creative animation option. The interface and tools are also intuitive and easy for beginners to use.

Help Desk

Answering Your Questions and Sharing Your Tips About Getting the Most From Your Mac

Mac OS X Hints

The insider tips you won't get from Apple.

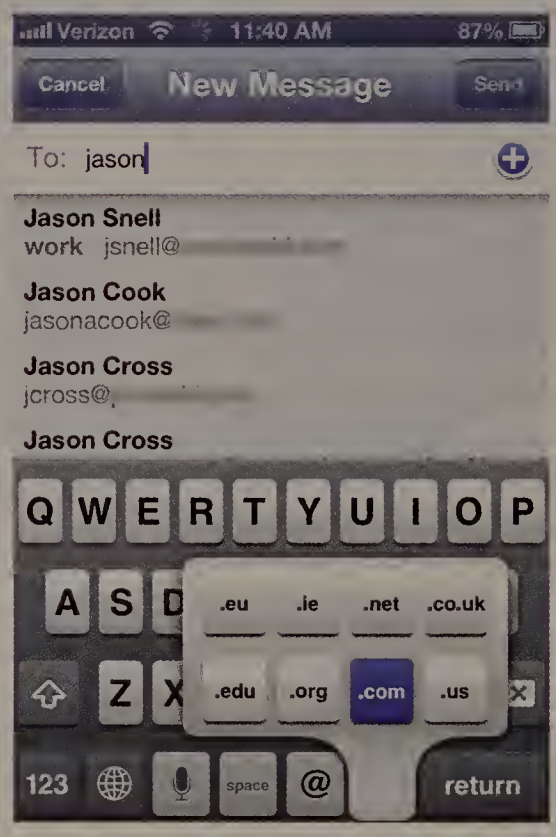
BY KIRK McELHEARN

Quickly Access Domains for Different Countries in iOS

You may know that, when you're typing in iOS, you can press and hold down the period (.) key or the .com key (depending on the app and the kind of field you're typing in) to access a pop-up menu with a handful of top-level domains, such as **.com**, **.org**, **.edu**, and so on. If your iOS device is set up to work in a country other than the United States, you'll have these options plus others, such as **.co.uk** if you're in the United Kingdom, or **.de** if you're in Germany.

You can also gain quick access to other countries' top-level domains by simply adding international keyboards to your iOS device. To do this, go to *Settings* ➝ *General* ➝ *International* ➝ *Keyboards*, and then tap *Add New Keyboard*. Tap the name of the language for the country you want. Afterward, when you next type an address in Mail, for instance, you can press and hold the period key and have quick access to additional top-level domains: For example, if you use the German keyboard, you'll have access to both **.de** and **.eu**.

I found an interesting side effect of doing this. Because I recently moved to England, I added the English (UK) keyboard so that I could type **.co.uk** easily. I dictate into my iPhone frequently—it's much quicker than typing—and I discovered that when I said "period," iOS would no longer translate that as the punctuation mark, but rather would type the word *period*. It would, however, type an actual **.** when I said "full stop." This shouldn't happen, because my iPhone's Voice Control setting is set to English (United States). Removing the UK keyboard, though, fixed this dictation problem.



More Top-Level Domains If you tap and hold the period key on your iOS device, a pop-up menu offers a choice of domain names.

> You can also gain quick access to other countries' top-level domains by simply adding international keyboards to your iOS device.

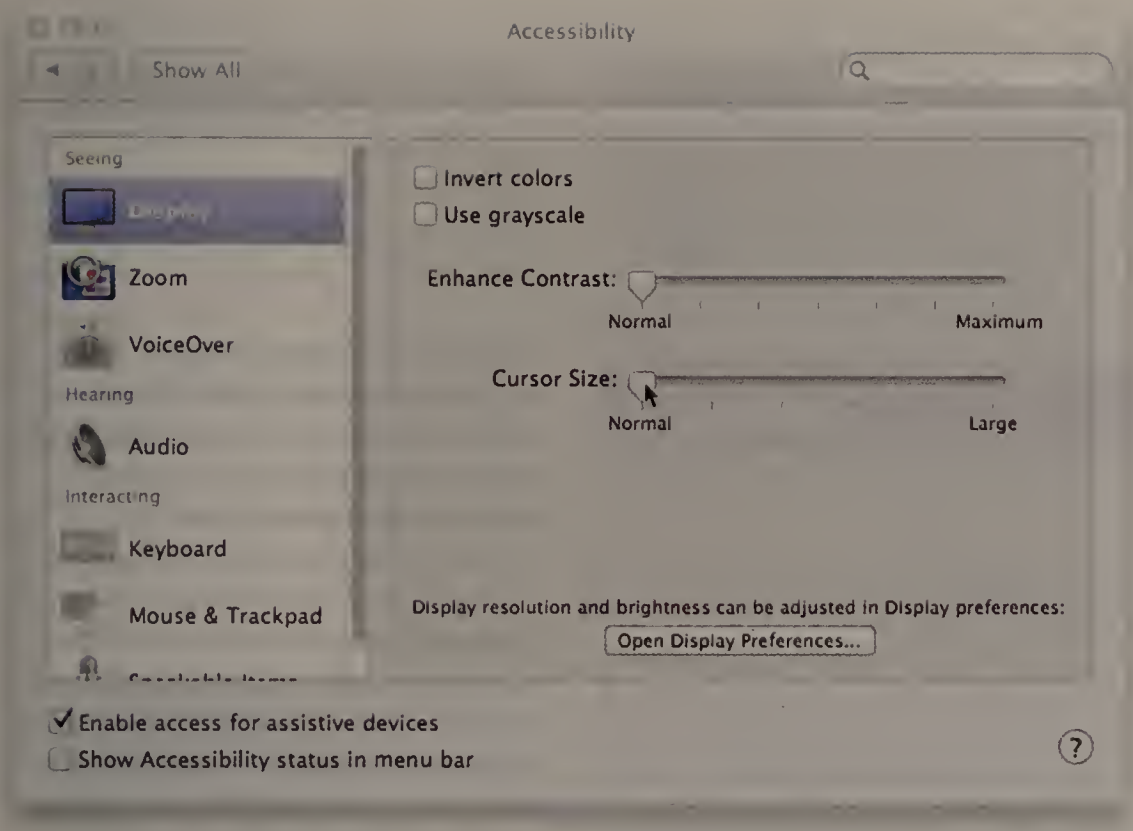
Manage Site-Specific Java Settings in Safari

The recent release of Safari 6.0.4 (and of version 5.1.9 of Snow Leopard), together with a recent update to Java, allows you to create site-specific settings for activating Java. Because Java has become a widely exploited vehicle for launching malware attacks, keeping it turned off if you don't need it is a good practice. The problem, however, is that many people do need it for the websites they tend to visit. If you're one of those people, the safest way to protect against drive-by attacks when visiting malicious websites is to configure Safari to activate Java only for websites that you specify.

Once you've installed the updates, if you visit a website that tries to load a Java applet, a dialog box will ask if you want to block or allow that applet. You can also go to *Safari* ➝ *Preferences* ➝ *Security* and click the *Manage Website Settings* button (it appears to the right of the Allow Java option) to view a list of websites that have attempted to load Java applets. You can then change the behavior for each of those sites.

Change OS X's Cursor

The Accessibility pane in System Preferences contains options for a number of adjustments that can make a Mac easier to use for *any* Mac owner. Changing the size of the cursor is one of the handiest of these adjustments. I have a 27-inch Thunderbolt Display, for example, and I find that the normal-size cursor is a little too small for me to see easily. So I've set my cursor to be somewhat larger.



A Cursor You Can See Bump up the size of your cursor by adjusting a slider in the Accessibility pane of System Preferences.

To make such adjustments, launch System Preferences, choose the *Accessibility* preference, and then click *Display*. Drag the *Cursor Size* slider from Normal (smallest) toward Large to find the size that you want to use, and then close the preference pane. Note that some applications may not honor this changed setting.

Select Lines by Numbers in TextEdit

TextEdit has a slightly hidden tool that lets you select specific lines within a document. You can summon the Select Line window by pressing ⌘-L. In this window, you can enter a single line number, or enter relative selections or ranges. For example:

2: Selects the second line of the document

+2: Selects the line two lines after the current one (where the cursor is)

-2: Selects the line two lines before the current one

12-14: Selects lines 12, 13, and 14

+2-4: Deselects three lines, starting two lines after the current one

-2-4: Deselects three lines, starting two lines before the current one

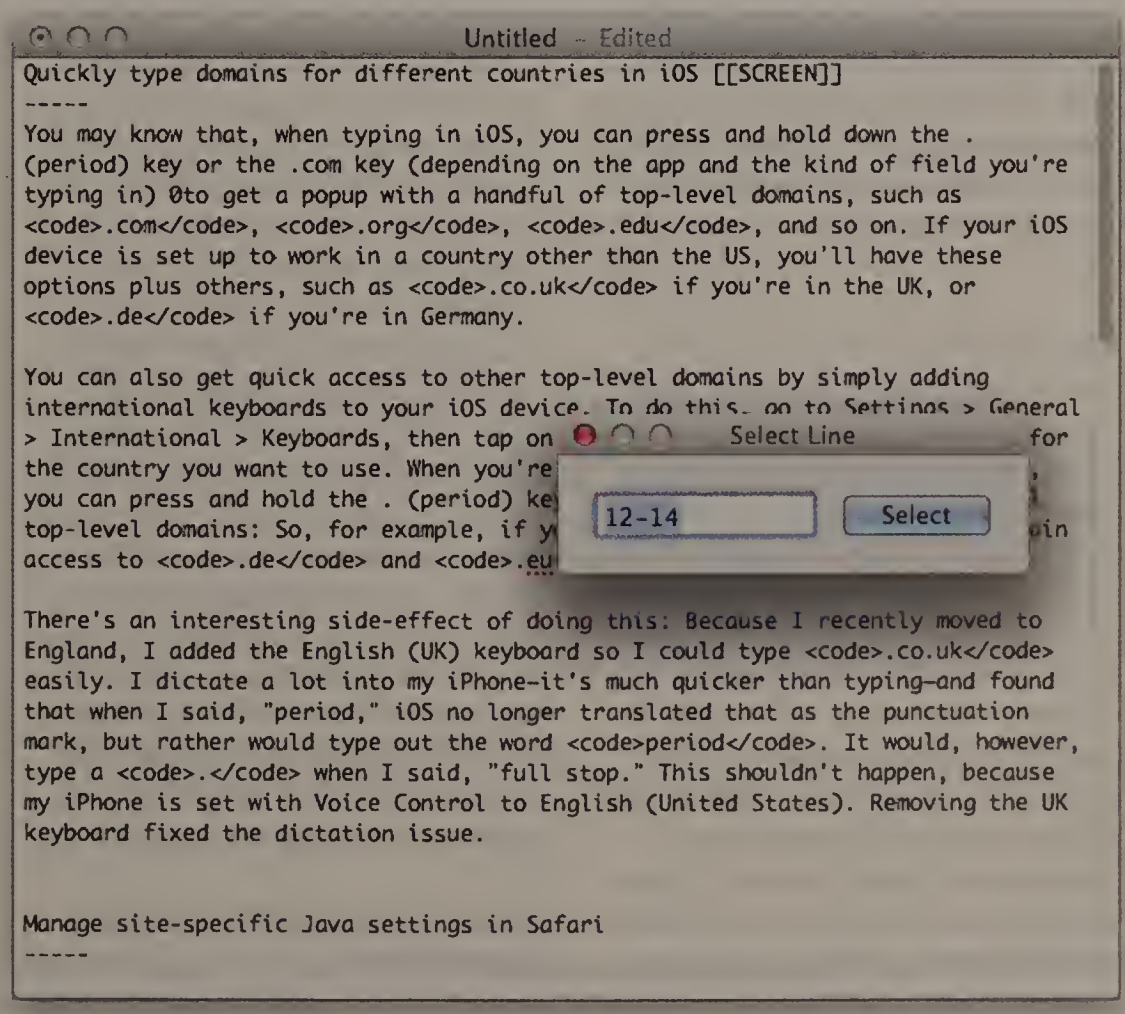
Prepare an iOS Device Before Selling It or Giving It Away

If you're planning on selling or giving away an old iPhone or iPad, you need to prepare the device first, both to preserve your privacy and to ensure your security.

To do so, go to *Settings* → *General* → *Reset*, and then tap *Erase All Content and Settings*. (If you've set a passcode on the device, you'll need to enter that passcode to continue.) An Erase iPad dialog box will inform you that the command you've selected will erase all media and data, and reset all settings; tap *Erase*. Another dialog box will ask if you're really sure you want to do this. Again, tap *Erase*.

The screen will go black except for the Apple logo and a progress bar, and then you'll see the iOS device's name (iPad, iPhone, or iPod touch) and a slider. Swipe the slider to begin setting up the iOS device as a new device. When the process is done, the device will contain only the default apps and settings.

You can use this same procedure to wipe and restore an iOS device; at a certain point, the setup process will offer you the choice of setting up the device as a new one or restoring from an iCloud or iTunes backup.

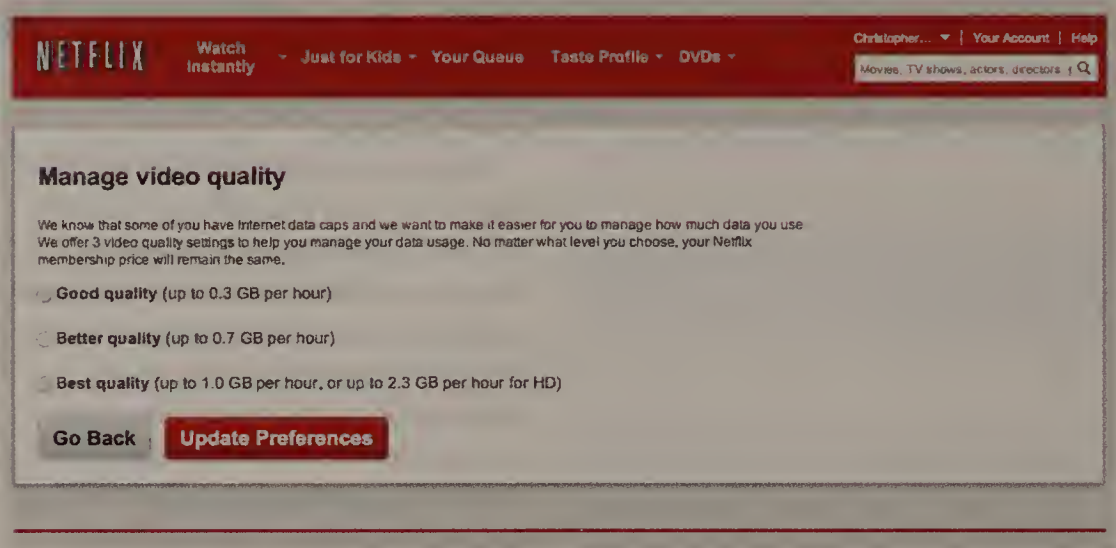


Relative Line Selections In TextEdit, you can quickly select a range of lines by typing their line numbers. In this example, typing 12-14 selects lines 12 through 14.

Mac 911

Solutions to your most vexing Mac problems.

BY CHRISTOPHER BREEN



Deal With Data Caps

Q: I find that my Internet provider has imposed a monthly data limit of 250GB. Three weeks into the month, and I'm about 20 percent over this limit, as we stream Netflix movies and download large files. Is there anything I can do to lessen my Internet usage yet still do these things?

Robert Cullers

A: In some cases it may be possible to upgrade your plan—either to one with a higher data cap or to a business plan that doesn't impose a cap. And in a very few places, you can choose a competing service that doesn't have a cap. But there are a few things you can do on your end to reduce data usage and avoid higher-priced plans and overage charges.

If Netflix streaming is burning up your data plan, consider choosing a lower-quality stream, which consumes less data. You can do that by visiting Netflix's 'Manage video quality' page (see "Quality Versus Quantity"). Here you can choose from among three settings: 'Good quality' (which uses up to 0.3GB per hour), 'Better quality' (0.7GB per hour), and 'Best quality' (up to 1GB for standard-definition or up to 2.3GB for HD per hour). Yes, the picture quality will suffer, but for some types of content—old movies and TV shows, for instance—you may be able to live with it.

Quality Versus Quantity If you're willing to sacrifice picture quality, you can squeeze more Netflix movies under your data cap.

You can do the same sort of thing with iTunes movies and TV shows. iTunes defaults to HD downloads, but you can choose less-data-intensive (and less-expensive) standard-definition versions.

For large software downloads, you might consider grabbing them on someone else's dime—particularly if you work for the kind of generous company that has bandwidth to spare and doesn't mind if you grab a couple of gigabytes of data and shove it on to a USB stick during your lunch break. Coffeehouses aren't so good for this kind of thing, as their connections are generally pretty slow (and get even slower when many people are sharing a connection to do this kind of thing).

Repair Your iPad's Network Connection

Q: After I used my iPad for a short time this morning, it suddenly didn't recognize my AirPort network, even after I switched the tablet off and on. My iPhone sees the network perfectly well, so I don't think it's a network problem. What should I do?

Walt Czeka

A: There are a variety of things you can try, and they work with any router. The first (and the one most likely to meet with success) is to shut off your iPad, pull the power plug on your AirPort base station to power it down, wait half a minute or so, plug the base station back in, wait for its green light to shine, and then switch on the iPad. This procedure can clear out some funk in the routing portion of the base station, which allows your iPad's network connection to return.

If this doesn't work, because the iPad is the problem child, you can fiddle with a couple of its settings. First, go to *Settings* → *Wi-Fi* and toggle the Wi-Fi switch *Off* and then *On* again.

No success? Try tapping the blue dot icon to the right of your network's name in this same Wi-Fi pane, and then tap *Forget This Network*. Move back to the Wi-Fi page, tap your network's name, enter its password, and hope that this time the correction takes.

Still no AirPort network recognition? Travel to the *General* setting, swipe down to the bottom of the screen, tap *Reset*, and tap *Reset Network Settings*. Confirm your choice by tapping *Reset* in the window that appears. Your iPad will reboot. Once it has done that, return to

Have a Problem?

Go to the Mac 911 forum (go.macworld.com/mac911) to ask about your misbehaving Macs and applications.

the Wi-Fi setting, tap your network's name, enter its password, and join in.

And then there are the more esoteric fixes—changing the channel on your router, and switching the router's security scheme. But given that your iPhone sees the network, I'm guessing that you won't need to go that far.

Prepare Audiobooks for the Road

Q: This summer we're going on a long road trip. I have some audiobooks on CD that I'd like to listen to during the trip, but the car's CD player is broken. Ideally I'd like to put the files on my iPod touch, but they're spread over several discs and I want to have just a single file. Any thoughts?

Oliver MacKenzie

A: The first thing you'll need to do is rip the tracks from the CDs. iTunes can help. Insert the CD and iTunes should automatically launch and display the disc's contents. Select all of the tracks and, from the *Options* menu that appears at the top right of the window, choose *Join CD Tracks*.

Click the *Import CD* button, and an Import Settings window will appear. If you decide to go with the standard import settings—the iTunes Plus setting, which specifies AAC format at 256 kilobits per second—you'll make files larger than they need to be. So instead, choose *Spoken Podcast* from the *Setting* menu and click *OK*. This produces sound that's good enough for spoken-word content in a form that doesn't consume a lot of storage space. iTunes will set about ripping the contents of that CD as a single audio file. Repeat this process for each CD in the audiobook set.

This takes you partway there: You've now gathered the files from the CD and put them into iTunes. Your next step is to combine them into a single file. Although you can do this with an audio editor such as Audacity or GarageBand, the process is a little complicated and you'll still need to format the file so that iTunes and your iPod recognize it as an audiobook.

For this reason I recommend Splasm's $5 Audiobook Builder (www.splasm.com/audiobookbuilder). This tool is a bit more full featured than iTunes' Join CD Tracks command, in that it not only lets you import tracks directly from CD but also permits you to add files from the Finder and to import tracks from iTunes. And like iTunes, it allows you to tag files and add alternative cover art.

Bugs & Fixes BY TED LANDAU

Pinpoint Crashing QuickTime Components Do you use third-party Mac applications to access video or photo files? If you do and you obtained the apps from the Mac App Store, you might experience crashes, especially when launching them. If so, here's what's likely going on.

Numerous video-related software packages, such as Flip4Mac Windows Media player and CamTwist Studio, are composed almost entirely of QuickTime components—or they install QuickTime components as part of a larger application. If you have any QuickTime components installed on your computer, you'll generally find them in the /Library/QuickTime or *username*/Library/QuickTime folder.

These components may also work with other video- and photo-related third-party software besides QuickTime. And this is where the app-crashing problems usually crop up. Apps sold via the Mac App Store must meet Apple's sandboxing restrictions. Some QuickTime components that did not come from the Mac App Store interact with these programs but are unaware of the sandboxing restrictions, and this shortcoming may lead to crashes.

To fix this problem, you must uninstall the offending component or update to a version that's compatible with sandboxing (assuming that such an update exists). How do you know which of the components need to be removed or updated? Boinx Software's free SandboxCleaner (boinx.com/sandboxcleaner) scans your hard drive and identifies likely troublemaking components. Once it identifies an offender, it directs you either to disable the component or to download a compatible updated version from the developer's website. Either method should put an end to QuickTime component-based app crashes.

OS X Recent Items Glitch When you click and hold an application's Dock icon, its Dock menu pops up. This menu typically includes a list of the application's recently opened documents (if it supports opening documents). But regrettably, the Dock menu lists periodically get messed up. Most especially, the lists often don't update as you open new documents, leaving you with an out-of-date list. In contrast, the file lists that you access via the Open Recent command are always correct.

I investigated and found a couple of ways to update the recent-items list in the Dock. I'll use TextEdit as an example. I quit TextEdit and removed its icon from the Dock (by selecting *Options* → *Remove from Dock* from TextEdit's *Dock* menu). When I next launched TextEdit, the Dock menu list matched the one in Recent Items. I then went back to TextEdit's *Options* and selected *Keep in Dock*.

Alternatively, I found that I could update the recent-items lists for all application Dock menus in one step. To do so yourself, launch Terminal. From here, type `killall Dock`. This forces the Dock to quit and relaunch. At this point, all Dock application lists will update and should be in sync with the File menu's recent-items lists.

This fix is not necessarily permanent. The first time I tried it, TextEdit's Dock menu list returned to its out-of-date/out-of-sync status after I began reopening files in TextEdit. After I repeated the fix several times, it finally seemed to take hold. For the moment, my lists remain in sync. But given past experience, I'm not confident that this will remain the case for long.

Shore your problems at bugs@mocworld.com or on Mocworld.com's Mac 911 forum.

View Project-Related Email Archives

Q: I have many folders in Mail that I would like to move out of that application but keep for future reference. What do you suggest?

Cathron Brewton

A: Create a mailbox (choosing to save it to your Mac rather than to iCloud) for each project and drag the appropriate messages to each one—for instance, your remodeling messages to a New Kitchen folder and wedding-related missives to the Here's Your Dowry folder. Create a master folder for these folders, call it something like Archived Export, and place the project folders in it.

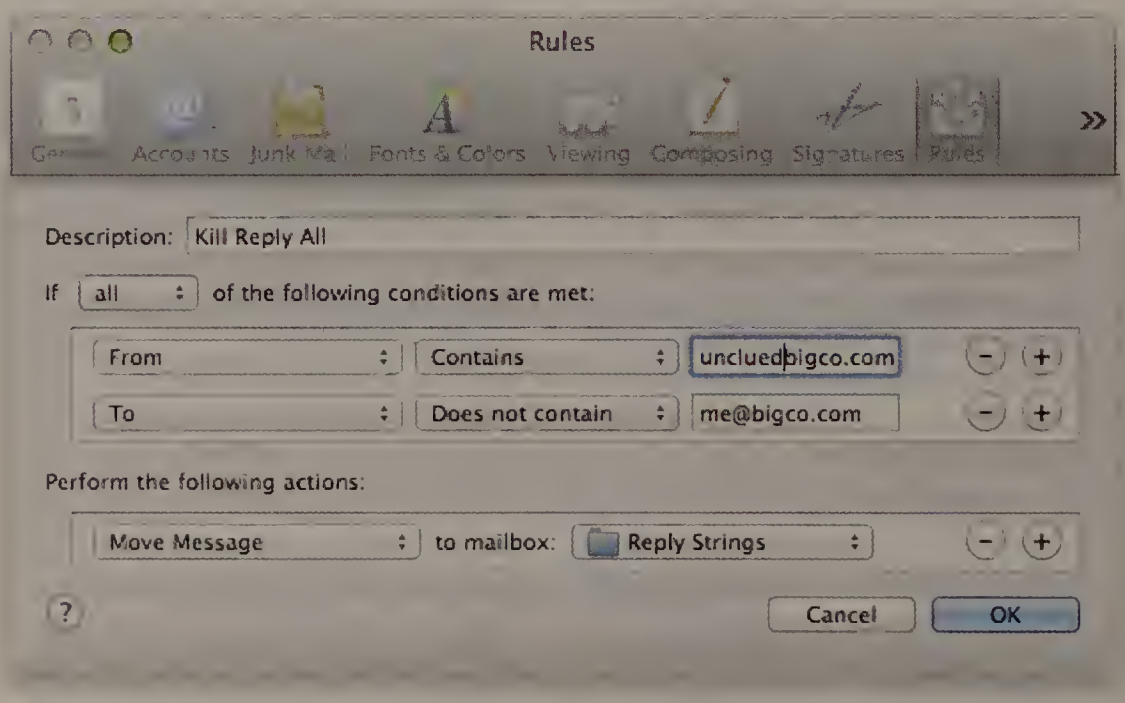
Select the master folder and choose *Mailbox* ➜ *Export Mailbox*. In the sheet that appears, choose a destination for the archive that will be created, and be sure to enable the *Export All Subdirectories* option. Click *Choose* to export your folders. Because you chose to export all subfolders, two items will be saved—one bearing the name of the original folder followed by .mbox (so, in our example, Archived Export.mbox) and a folder that is also named after the master folder (Archived Export). Inside this second folder you'll find mbox files for each folder that lies within the master folder—New Kitchen and Here's Your Dowry, in our case. You can then save that master folder wherever you like.

Now we get to what I suspect is the meat of your question: viewing those messages in the future. Although you could reimport these messages into Mail, I suggest that you use Mozilla's Thunderbird email client for this purpose, since it's free and, with the help of an add-on, able to import mbox files.

Download and install Thunderbird (go.macworld.com/thunderbird). From the *Tools* menu, choose *Add-ons*. In the Add-ons search field, enter **`ImportExportTools`**. Click the *Install* button next to the add-on that appears. Thunderbird will download and install the add-on. Click the *Restart Now* link to restart Thunderbird.

Choose *Tools* ➜ *ImportExportTools* ➜ *Import Mbox File*. In the sheet that appears, enable the *Select a directory when searching the mbox files to import (also in subdirectories)* option and click *OK*. In the resulting window, select the master folder (not the .mbox file) that you've exported from Mail and click *Choose*. You'll be asked to affirm that you want to import each mbox archive within that folder. Choose to. (You can also select the *Don't ask me again* option to ensure that the remaining mbox files will be imported without requiring your confirmation every time.) Each folder archive will be imported into Thunderbird and will bear its original mbox name—mbox724, for example. Feel free to rename these items.

When you later wish to revisit these messages, just launch Thunderbird and choose the appropriate archive.



Kill Reply All A rule like the one shown above ensures that email from a particular domain that's not addressed specifically to you is shuttled out of your inbox.

End Reply-All Annoyances

Q: My company has several divisions, and each one has its own group email list that includes everyone within that division. There's also a company-wide address. Every so often we hire a new person or the company softball team wins a game, and staff members use these group addresses to send out strings of "Welcome" or "Woo-hoo!!!" messages—and the endless replies from these things bombard my inbox. Any way to stop it?

via the Internet

A: I'm big on education as a means for short-circuiting problems like these. If you can find a way to politely inform employees that their email client has both Reply and Reply All buttons, that's a good first step. But as your career may be at stake, let's turn to protection.

If you're using Gmail, as many companies now do, you have the ability to mute one of these conversations entirely. Open your Gmail account via a Web browser, select the conversation, click the *More* button near the top of the page, and from the More menu choose *Mute*. The conversation will move to your Gmail archive, and you won't see future messages unless they are sent directly to you and no one else.

If you're not using Gmail or if your email client doesn't allow you to easily mute conversations, you must turn to rules within your email client. To avoid getting tangled in these time-wasters, sift through your email to find elements typical of your company's Reply All spam. So, to give an example in broad terms, you might construct a rule that contains the email domain of the division responsible for the bulk of the spam and that also ensures that the email message is written directly to you rather than to a group (see "Kill Reply All").

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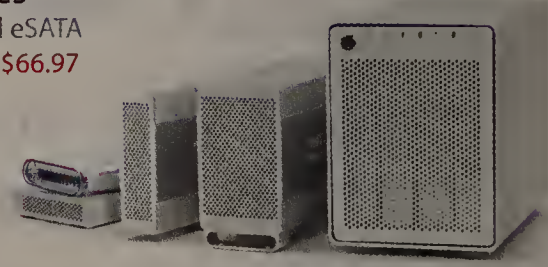

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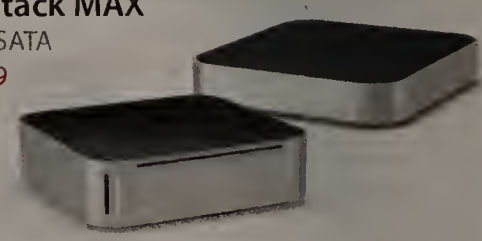

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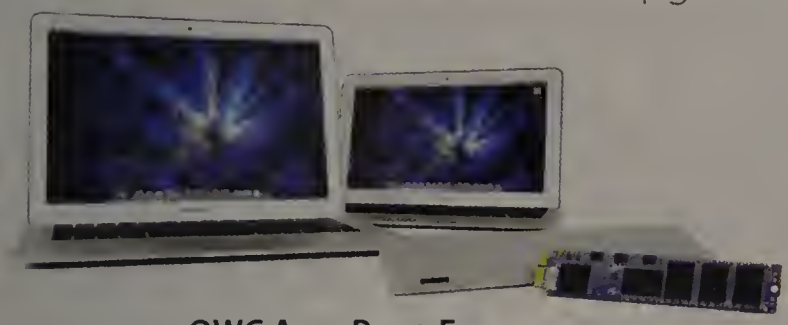

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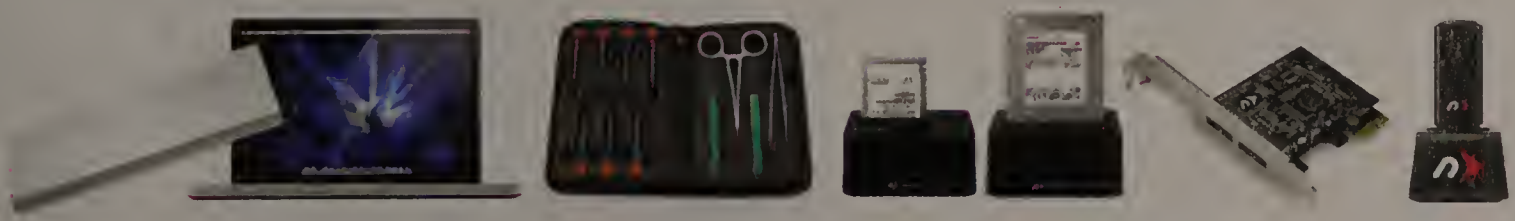

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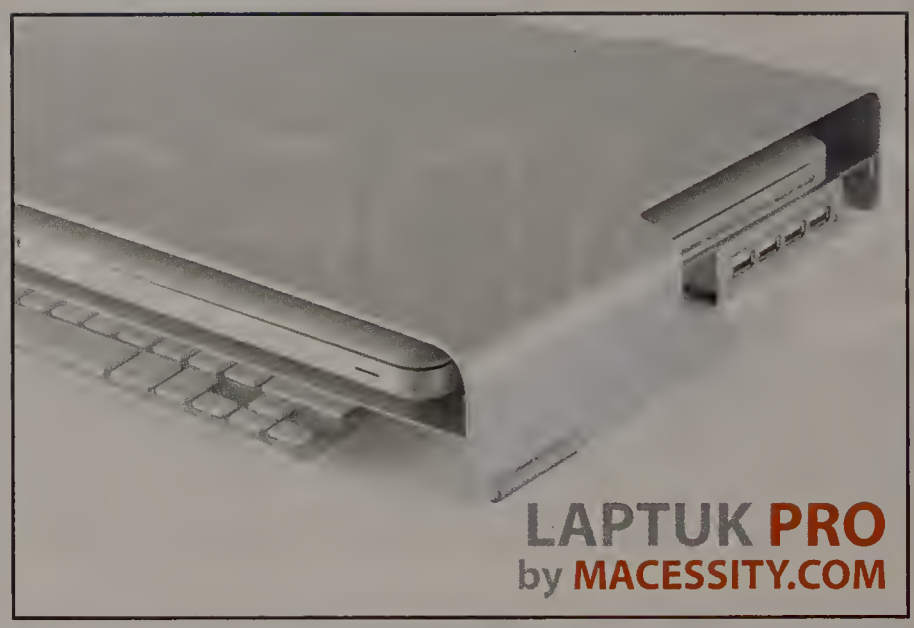

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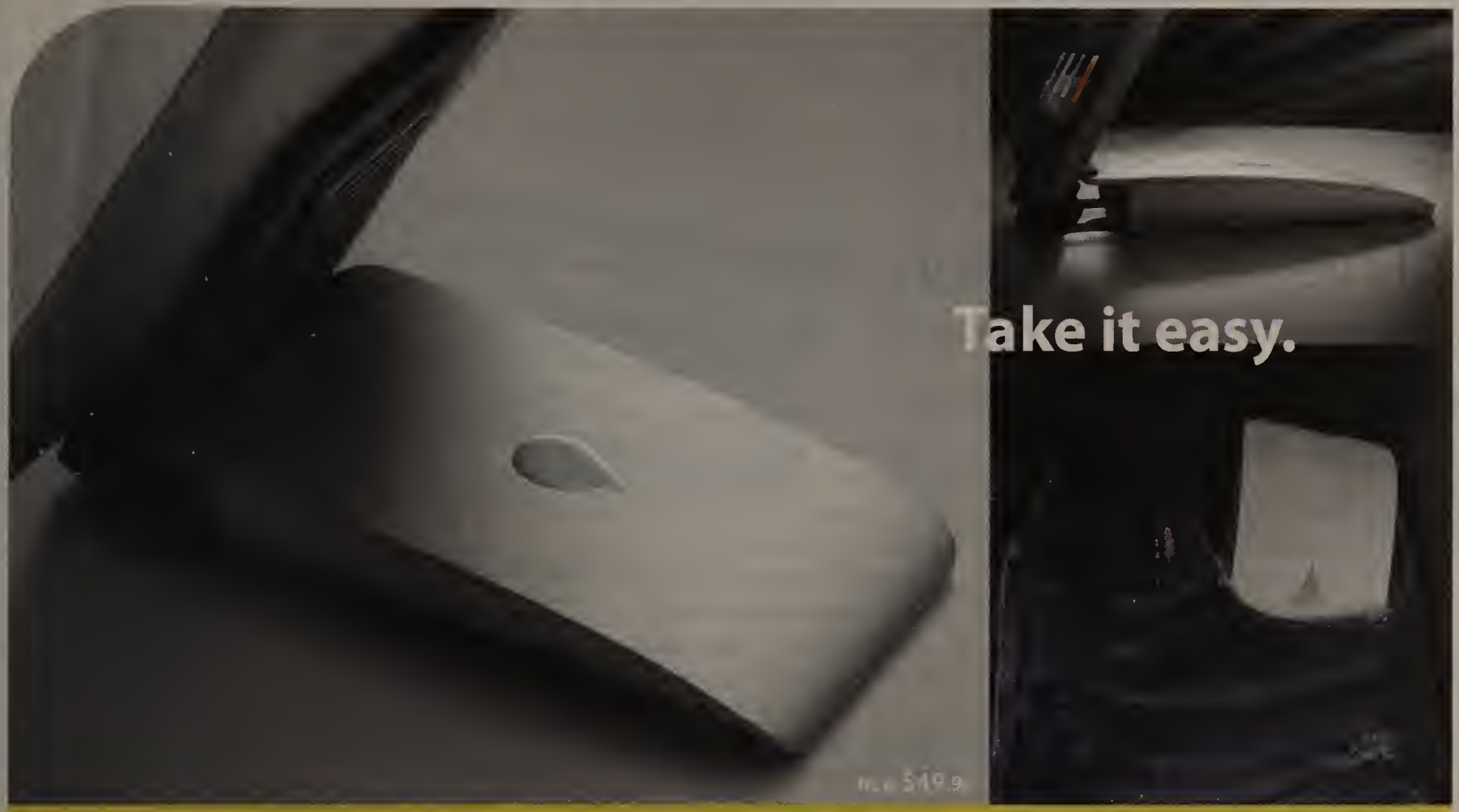

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By Cabel Sasser

The Assimilation of Apple

Should we worry as the company migrates from nerd-fringe pioneer to mainstream powerhouse?

Remember when Mac users were the fringe, the holdouts, the misfits, the ADB plugs put in the USB holes? Well, everyone's found our party. That's awesome—but I'm still not totally comfortable with it.

Why? Let me explain with an analogy. I know a shocking number of songs only by way of the "Weird Al" Yankovic parody versions. I have no idea what the real lyrics are to James Brown's "Living in America," but I can name all the medical conditions in "Living With a Hernia." The popular kids had the popular songs, but I had the same songs with arguably funnier lyrics. So in my 12-year-old mind, I won.

Before I switched to the Mac, I had an Amiga—a computer so far ahead of its time that it could handle multiple applications effortlessly while simultaneously defending its owner's virginity at any cost. When the company went bankrupt, I switched to the Mac because it was the only choice: PCs were what squares with suits, mortgages, and hot lunches used. The Mac was unpopular, universally derided, and most important, incredible.

The Very Big Apple

So it's still a little bit weird for me to walk into an Apple Store today and see every corner of it jam-packed with humanity.

Yes, in an unbelievably short period of time, Apple crossed over. Much like "Weird Al" himself, Apple got a haircut and LASIK surgery, shaved off its mustache, ditched the nerdy glasses, and created the iPod. And the iPhone. And the iPad. Momentum that had already been slowly building on the Mac side took off as the iDevices took hold, and Apple stickers migrated from Volvo rear windows to skateboard decks.

It's great to see people appreciating what I've always appreciated. It's exciting to see Apple's innovations reach more people than ever before. It's beautiful to see FaceTime being used to discuss last night's *Game of Thrones* and to connect grandparents and grandchildren. It's nice to have games on an Apple platform. It's wonderful to see multitudes of people come to the realization that these are the best computers in the world.

But late at night, I hear voices whispering, "How long can this last?"

Today's Teardrops Are Tomorrow's Rainbows

The problem with massive popularity is that it's fleeting, and it can hinge on the most superficial of loyalties. After all, today's Angry Birds is tomorrow's Pac-Man. This stuff moves fast.

But, you know what? I'm okay with that. Because I wouldn't mind seeing an Apple that's just a little less popular. One that's taken down a peg or two. I sometimes find myself very awkwardly rooting for Microsoft, Nokia—anybody—to put up a good fight and keep that fire burning under Apple's collective behind. The smartest, most incredible people work in Cupertino. Their capabilities are boundless and their drive is seemingly endless, but sometimes—especially if you happen to be a developer—you may get the feeling that Apple doesn't really need you and will do just fine without you, thank you very much. I want Apple to need us.

> Sometimes—especially if you happen to be a developer—you may get the feeling that Apple doesn't really need you.

Apple in the Middle

If Apple can find that comfortable middle ground, we're set. Where people still watch the company's keynotes closely, but their constant flying-car expectations have mellowed out. Where the company continues to innovate constantly, but at a somewhat more relaxed pace, so that when the innovations emerge, they truly stand out. Where Apple still pushes the industry forward, but still feels that it has something to prove to doubters.

Of course, for this scenario to unfold, Apple's stock would have to plummet (more)—and treating that outcome as a consummation devoutly to be wished makes me (as a shareholder) an idiot. And don't get me wrong: I'm glad Apple has reaped the success it so long deserved.

If all else fails, Apple, take solace in this inarguable fact: We—the nerds—will always be there for you. As long as you don't dump too much DRM in our dingles, or donate all of your proceeds to dolphin-harvesting, we'll buy every new thing, and hang on every new word. We're your #1 fans. We might not always be cool, but we're awfully consistent. After all, "Weird Al" has been making parodies, with the same band, for 30 years.

Cabel Sasser *is cofounder of Portland, Oregon–based Panic, which specializes in creating Mac OS X shareware apps.*

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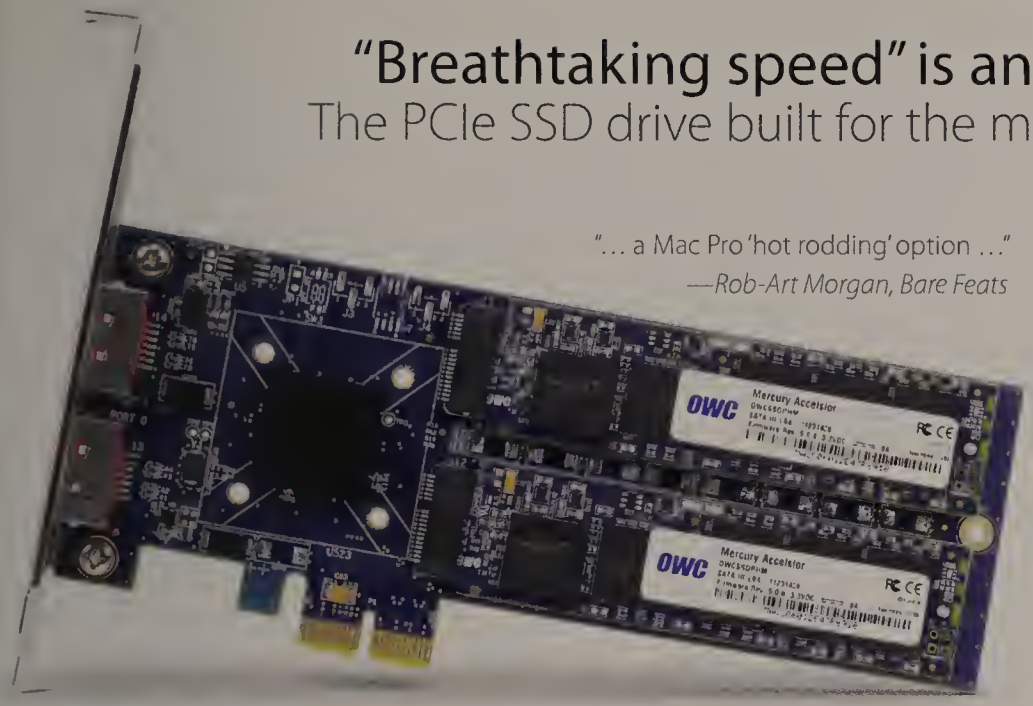

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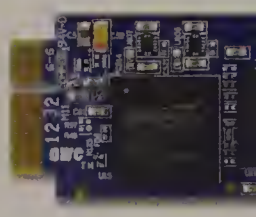

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